COMPARATIVE STUDY OF THE PRODUCTIVE AND UNPRODUCTIVE ALLOCATION OF ENTREPRENEURIAL EFFORTS

BY

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DISSERTATION

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ABSTRACT

Entrepreneurs drive economic prosperity in a country when they produce value through innovation. But, not all entrepreneurship is productive - entrepreneurs can channel their energies towards unproductive (rent-shifting) activities ranging from unregistered businesses to criminal enterprise. The core proposition of this dissertation is that a country's socio-cultural values and norms determine the likelihood of an individual undertaking entrepreneurial activity of any type while rules and regulations shift entrepreneurial activity toward productive or unproductive behavior. This dissertation integrates the socio-cultural literature with the rules and regulations literature to explain the amount of productive and unproductive entrepreneurship in a country by predicting both the total supply of entrepreneurial activity in a country and its allocation into productive and unproductive applications. In this dissertation, I investigate why the amount of productive and unproductive entrepreneurship varies across countries by analyzing the amount of entrepreneurship and its allocation in 25 countries between 2004 and 2008. My findings show that pro-entrepreneurial socio-cultural values drive both productive and unproductive entrepreneurship and that the most favorable mix of entrepreneurship actually derives not from the most well-defined property rights, most lenient bankruptcy laws for the entrepreneur, most open trade policies nor most flexible labor markets, but rather from moderate levels of those rules and regulations.

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I end my acknowledgements with a text message that my Dad sent to me minutes before I walked into my final dissertation defense on April 5, 2013: "All your dreams can come true if you have the courage to pursue them" – Walt Disney.

To my parents William and Nancy McCormick

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CHAPTER 1: INTRODUCTION

Entrepreneurs drive economic prosperity in a country when they produce value through innovation. The entrepreneurship literature overall views entrepreneurial activity as socially beneficial because entrepreneurs are the actors who create organizations that yield new jobs, increase trade, and generate or accelerate innovative ideas (Arzeni, 1998; Bates and Dunham, 1993; McDougall and Oviatt, 1997) which each in turn leads to economic growth. But, not all entrepreneurship is productive – entrepreneurs can channel their energies toward unproductive activities ranging from litigation to criminal enterprise (Baumol, 1990). This dissertation seeks to explain and predict the conditions that enhance productive entrepreneurship while mitigating unproductive entrepreneurship.

In this dissertation, I investigate why the amount of productive and unproductive entrepreneurship varies across countries. My core proposition is that a country's social values and norms determine the likelihood of an individual undertaking entrepreneurial activity of any type, either productive or unproductive, while rules and regulations shift entrepreneurial activity toward productive or unproductive behavior. My main contribution is integrating the socio-cultural literature with the rules and regulations literature into a model that explains the amount of productive and unproductive entrepreneurship in a country by predicting both the total supply of entrepreneurial activity in a country and its allocation into productive and unproductive applications. Doing so extends both literatures, while providing better guidance to managers and policy makers.

The socio-cultural literature on entrepreneurship (e.g., McGrath et al., 1992) examines how differences in societal values across countries lead to different levels of productive entrepreneurial activity, but ignores the potential for that effort to be channeled into unproductive

entrepreneurship. In contrast, the rules and regulations literature posits that entrepreneurship can be allocated toward productive or unproductive (or even destructive) applications depending on the structure of payoff or incentives, but ignores possible differences in the supply by holding the supply of entrepreneurs as fixed. Consequently, neither literature in isolation explains the variation in total entrepreneurship across countries. By bringing the literatures together, as illustrated in figure 1, I am better equipped to explain the amount of total entrepreneurship in a country by estimating both the total supply of entrepreneurial activity and its allocation into productive and unproductive activities.

I make three additional inter-related contributions. First, I build on Baumol's (1990) broad reference to the set of rules "that undergoes significant changes from one period to another and helps dictate the ultimate effects on the economy via the allocation of entrepreneurial resources" (page 894), and identify a specific set of institutional factors that steer the allocation of entrepreneurial resources. Second, my model and data allow me to add to the very small body of work that empirically tests Baumol's (1990) widely cited theoretical papers. Doing so leads to my third contribution, helping resolve a tension in the economic literature on entrepreneurship - do poor institutions, e.g., over-regulation, suppress total entrepreneurial activity, per Djankov et al. (2002), or do they shift the allocation of that effort from productive to unproductive application, per Baumol (1990).

Additionally, this dissertation expands the empirical basis for studying entrepreneurship. I combine multiple established data sources specific to entrepreneurship and more general sources to develop reliable indicators for socio-cultural factors, the regulatory environment, and the amount of both productive and unproductive entrepreneurship across 5 years in 25 countries.

Determinants of the Amount: Socio-cultural Literature

The predisposition toward entrepreneurship varies between countries (Muller and Thomas, 2000). The socio-cultural literature posits that this variation results from differences in societal norms that shape the degree to which the qualities and actions required to pursue entrepreneurship are valued or at least tolerated. These norms act on individuals within each country, creating a central tendency within the population as a whole that is more or less consistent with pursuing entrepreneurial activity. While numerous factors influence a given individual's tendency to engage in entrepreneurial activity, countries with more pro-entrepreneurial values and beliefs will have more individuals inclined towards entrepreneurship and as a result generate more overall levels of national entrepreneurship.

The socio-cultural literature examines how differences in societal values across countries lead to different levels of productive entrepreneurial activity, but ignores the potential for that effort to be channeled into unproductive entrepreneurship. The socio-cultural literature provides us with the amount (supply) of entrepreneurs but not the allocation.

Proposition 1: Both productive and unproductive entrepreneurship can result from the same pro-entrepreneurial socio-cultural values.

Allocation of Entrepreneurship

Baumol (1990) and others (e.g., Murphy, 1991) propose that entrepreneurial effort, as defined as carrying out new combinations (Schumpeter, 1934), can be allocated among productive (rent-creating), unproductive (rent-shifting[1]) or destructive (rent-destroying) forms. The determinants of the allocation of entrepreneurial effort are influenced by the relative payoffs,

[1] The literature (e.g., Desai & Acs, 2007) refers to unproductive entrepreneurship as 'rent-seeking' but in general all entrepreneurs (productive, unproductive or destructive) are seeking rents so in this dissertation I adopt the phrase 'rent-shifting' to unproductive behaviors. Unproductive entrepreneurs are shifting rents instead of creating new value.

in a manner that corresponds to the variations in the 'rules of the game' (North, 1990). Entrepreneurs will allocate their efforts toward productive activities when the incentive system makes being a productive entrepreneur more beneficial than unproductive. Theorists of the *allocation of entrepreneurship* hold the supply of entrepreneurs constant and accordingly neglect that some countries may value entrepreneurship more than others and consequently have a higher quantity of potential entrepreneurs. The allocation of entrepreneurship literature provides us with the concept that entrepreneurship can be allocated among different activities but does not look at how that allocation may correspond with the supply. Furthermore, the theory broadly references rules and regulations but does not provide specific factors that may determine the shift of entrepreneurial activities toward productive or unproductive allocations.

Specific Determinants of the Allocation: Rules & Regulations

The regulatory environment in which an entrepreneur resides significantly influences his allocation of entrepreneurial effort (Bowen and De Clercq, 2008) because it determines the costs and benefits of productive entrepreneurship. In deciding whether to pursue productive or unproductive entrepreneurship, an entrepreneur will consider the costs he must incur to pursue productive entrepreneurship and the opportunity to capture rents from his efforts.

When the benefits of being a productive entrepreneur are constrained and when it is difficult for the entrepreneur to capture the value of his productive efforts then the entrepreneur will be more likely to allocate his efforts toward unproductive behaviors (Murphy et al., 1991). Extant research shows that countries with high regulatory costs of productive entrepreneurship have lower levels of productive entrepreneurship and higher levels of corruption (e.g., Botero et al., 2004; Klapper et al., 2006). Conversely countries with low regulatory costs of productive entrepreneurship have higher levels of productive entrepreneurship and lower levels of

corruption (Djankov et al., 2002; Minniti, 2008). Protection and rewards for an entrepreneur's novel ideas with minimal efforts to act on those ideas enables the greatest appropriation of rents and encourages productive entrepreneurship. Accordingly, in this dissertation optimal rules and regulations are those that provide the maximum ability for the productive entrepreneur to capture rents from his efforts at the minimal possible cost.

Proposition 2: The closer to optimal the rules and regulations in a country the greater the impact of pro-entrepreneurial socio-cultural values on levels of productive entrepreneurship relative to unproductive entrepreneurship.

In this dissertation, I identify five institutional factors that shift the allocation of entrepreneurial resources. The factors are administrative barriers to entry, property rights and enforcement of contracts, bankruptcy laws, trade policies, and labor markets. These specific factors are drawn from the economic regulation literature and act as catalysts for when costs are low or deterrents when costs are high for productive entrepreneurship (e.g., Djankov et al., 2002).

CHAPTER 2: THE SUPPLY OF ENTREPRENEURSHIP - THEORY AND HYPOTHESES

I put forward that the same pro-entrepreneurial socio-cultural values drive both productive and unproductive entrepreneurship. The socio-cultural literature posits that variation in the predisposition toward entrepreneurship across countries results from differences in societal norms that shape the degree to which the qualities and actions required to pursue entrepreneurship are valued or at least tolerated (Muller and Thomas, 2000). These norms act on individuals within each country, creating a central tendency within the population as a whole that is more or less consistent with pursuing entrepreneurial activity. While numerous factors influence a given individual's tendency to engage in entrepreneurial activity, countries with more pro-entrepreneurial values and beliefs will generally have more individuals inclined towards entrepreneurship and as a result generate more overall levels of productive and unproductive entrepreneurship[2]. I identify four pro-entrepreneurial, allocative-neutral, socio-cultural value categories - *tolerance for ambiguity, egalitarian value system, acceptance of individuality, and portrayal of entrepreneurship by media* - from which the propensity within a nation for entrepreneurial behavior can be explained.

This section builds from the theory of culture as defined by Hofstede (1980, 1991, and 2001) because it is the most widely used cultural indicators in the international business literature (Kirkman et al. 2006) and provides a "clear articulation of differences across countries in values, beliefs, and work roles" (Pinillos and Reyes, 2009 pg. 24). Hofstede's (1980) international study surveyed 117,000 IBM employees across 70 countries at two points in time between 1968 and 1972. Hofstede's (1980) goal was to examine invisible cultural differences so that IBM could

[2] This dissertation takes a country's social values and norms as given in 1998. Thus, any institutional factors that may directly affect preferences through their direct influences on situational construal and rewards or indirectly influence the process of cultural transmission itself (Bowles, 1998) are outside of the scope of this paper.

improve their practices worldwide. Based on the results, Hofstede (1980) initially developed four, later adding a fifth, measures of cultural values. They are power distance, individual-collectivism, uncertainty avoidance, masculinity-femininity, and long term orientation. The cultural values for which I will focus are the measures: Power distance, individual-collectivism and uncertainty avoidance because they are the subjective measures most widely used to explain national rates of entrepreneurship (e.g., Davidsson & Wiklund, 1997). In addition, I add other socio-cultural theory and research specific to entrepreneurship (e.g., McGrath et al., 1992).

This dissertation theorizes and tests socio-cultural values of a country as an umbrella paradigm; each of the parts contributing to the overall socially-constructed meaning systems (Berger and Luckmann 1967; Malinowski 1961) that influence the inclination of individuals to engage in entrepreneurial activities. As specified by Williams and McGuire (2010) "intuitively, culture is a construct composed of factors that are interdependent and should be considered together" (pg. 398). Likewise, this dissertation hypothesizes the relationship between the umbrella socio-cultural construct and productive (or unproductive) entrepreneurship rather than between each socio-cultural variable independently and productive (or unproductive) entrepreneurship.

Tolerance for Ambiguity

Tolerance for Ambiguity is the extent to which the members of a culture do not feel threatened by unknown situations (Hofstede, 2001). People view ambiguity from different perspectives. Some societies are more accepting of the unpredictable future and welcome change. Other societies feel stress about the unknown and are more reluctant and cautions of change, preferring things to remain the same. Hofstede (2001) categorize countries into a continuum from low uncertainty avoidance to high uncertainty avoidance societies.

Hofstede's (2001) measure of tolerance for ambiguity is derived from Cyert and March (1963) which states:

> "[Organizations] avoid the requirement that they correctly anticipate events in the distant future by using decision rules emphasizing short-run reactions to short run feedback rather than anticipation of long-run uncertain events. Second…they arrange a negotiated environment. They impose plans, standard operating procedures…., and uncertainty-absorbing contracts" (pg. 119).

Hofstede (2001) proposes that in the same way organizations cope with ambiguity using rules and rituals, human societies at large use law and religion as coping mechanisms. Different citizens adapt to ambiguity in different ways in both traditional and modern societies (Hofstede, 2001). The ways of coping belong to the cultural heritage of societies and are reinforced by institutions.

Entrepreneurship requires a tolerance for ambiguity because entrepreneurs work to develop novel products or processes (Tushman and O'Reilly, 1997) and must make decisions when they have enough information to anticipate outcomes but not enough information to know the probability of success or failure of those outcomes (Alvarez & Barney, 2007). Entrepreneurs score significantly higher than managers in their tolerance for ambiguity (Begley and Boyd, 1987; Brockhaus, 1982; Schere, 1982). One reason that entrepreneurs are more tolerant of ambiguity is because entrepreneurs, on average, are more optimistic than managers in making decisions in situations where information is limited or there is a high degree of outcome uncertainty (Busenitz and Barney, 1997).

The national culture in which the individual resides significantly influences her perception of the unknown and her mechanisms for coping with the resulting ambiguity (Kwok and Tadesse, 2006). Some countries teach their members that they must learn to live in an ambiguous world (McGrath et al., 1992) while others try and avoid it all together. Cultures that

reinforce control over the future are less likely to prepare individuals to engage in entrepreneurial behavior (Hayton, 2002; Herbig and Miller, 1992). Conversely, countries that are more accepting of ambiguity will have individuals that are more willing to enter into unknown ventures (Hofstede 2001). Additionally, research has shown that countries that are more accepting of ambiguity are more favorably disposed toward new ideas, such as those produced by an entrepreneur (Phillips & Wright, 1977; Yates et al., 1989).

Countries with a higher tolerance for ambiguity are accepting of non-traditional behavior; consequently entrepreneurs in these settings have more legitimacy and stronger social incentives to act on endeavors than their counterparts, where entrepreneurial behavior is viewed as challenging tradition (Shane, 1993). The combination of these effects means that countries with a greater tolerance of ambiguity will have a larger pool of potential entrepreneurs and be more welcoming to their entrepreneurial efforts.

Egalitarian Value Systems

The extent to which the less powerful expect and accept power is distributed unequally varies across countries (Hofstede, 2001). Different societies put different weights on status consistency among three areas of inequality: prestige, wealth, and power. Some societies elaborate formal systems of dominance while others go great lengths to de-emphasize dominance. Hofstede (2001) categorizes countries into a continuum from low power distance to high power distance societies.

Both low and high power distance societies have hierarchies but low power distance societies view them as arrangements out of convenience and are not afraid to express disagreement with superiors. In low power distance societies, the central tendencies of

individuals are to view both subordinates and superiors as 'like me', everyone should have equal rights, especially in terms of ideas, and there is a general stress on reward and legitimacy.

On the contrary, high power distant societies view those in power as 'superior to me' where subordinates do as they are told and do not question or challenge manager's decisions. High power distance societies view superiors and subordinates as being 'of a different kind', power holders are entitled to privileges, and there is a general stress on coercive and referent power (Hofstede, 1980). Accordingly, the ways of viewing power distance belong to the custom of societies and are reinforced by the behaviors of superiors and subordinates. Some societies allow for the free flow information and communication across power statuses while others have clear hierarchical set boundaries.

Entrepreneurship requires the free flow of communication across organizational hierarchies (Aiken and Hage 1971; Evan and Black 1967; Kanter 1982; Thompson 1967). Entrepreneurs are much more accepting that equality is everyone's right than their manager counterparts (McGrath et al., 1992; p. 126). This connection between a greater exchange of information across functional tiered boundaries and entrepreneurship has been verified across many countries (e.g., Kanter 1982; Nonaka and Yamanouchi 1989). For example, Knight (1987) found that innovating companies believe that anyone can become an innovation champion; "Even the janitor should be able to champion an idea all the way through to its development" (Shane, 1993 pg. 62). Hence, entrepreneurship is most prevalent in contexts where the perception of hierarchy is more consultative – where a person of any rank can cultivate an idea all the way through its progress – and where people feel freedom and control over this process.

The institutional environment in which an entrepreneur is embedded significantly influences his egalitarian value system. Societies with less egalitarian values perceive authority

as autocratic where superiors are viewed as existential (superior) people and forces outside the control of the subordinate determine outcomes (Rotter, 1966). In contrast societies with more egalitarian value systems exhibit liberties to challenge ideas and decisions (Hull and Hage, 1982; Shane, 1993; Thompson, 1967; Weber, 1958; Whyte et al., 1969) and consequently will have a larger proportion of individuals who believe in their own abilities and will seek disproportionate rewards when those abilities turn into entrepreneurial effort (Mueller and Thomas, 2001). These liberties encourage entrepreneurial behavior because entrepreneurship by definition requires challenging the status quo via discovery of new opportunities (Kirzner, 1973) or exploitation of carrying out new combinations (Schumpeter, 1934).

Furthermore, egalitarian value system societies have a narrow 'zone of indifference' between hierarchies. The 'zone of indifference' between subordinates and their superiors is widest in places where the subordinate will accept orders without questioning authority (Barnard, 1938) and superiors do not seek to convince subordinates but only seek to obtain their compliance (Mahoney, 2005). Narrower zones of indifference provide a supportive environment for entrepreneurs (e.g. Shane, 1993) because it provides a welcoming environment for subordinates to question processes or ideas and as a result encourages individual initiative at all levels (Pinillos and Reyes, 2009). Consequently, countries with egalitarian value systems will have more entrepreneurs and be appreciative of their efforts.

Acceptance of Individuality

Individualism is defined as societies in which "ties between individuals are loose: Everyone is expected to look after him/herself and his/her immediate family only" (Hofstede, 2001 pg. 225). Collectivistic societies are those with strong, cohesive in-groups and an unquestionably lifetime loyalty and trust to the group or society as a whole. Hofstede (2001)

categorizes countries into a spectrum from low individualist (collectivistic) to high individualistic societies.

Low individualistic societies have central tendencies of 'we' orientations, emphasis on belonging to the group and emotional dependence on institutions and organizations. High individualistic societies have "I" orientations, emphasis on individual initiates and achievement (leadership is ideal), and are emotionally independent from institutions or organizations. Because the relationship between degree of individualism or collectivism in a society is linked to societal norms, we observe these behaviors to effect individuals' day-to-day behavior at home and work.

Entrepreneurship requires independence, self-reliance, resourcefulness and self-confidence (Hornaday and Aboud 1971; McClelland 1987; Shane, 1993; Solomon and Winslow 1988; Timmons 1978). The entrepreneur is a motivated individual who relies primarily on self rather than others to formulate and implement his goals and accepts his own failure (Hisrich, 1990; McClelland, 1961; Mueller & Thomas, 2001). Entrepreneurs are commonly characterized as demonstrating a greater internal locus of control, believing their own ability, instead of external forces, such as luck or destiny (Brockhaus, 1982; Perry, 1990; Rotter, 1966; Shapero, 1975; Winslow and Solomon, 1989).

Extent research has shown a strong link between the acceptance of individuality in a country and entrepreneurial behavior (Hayton et al., 2002; Hunt & Levie, 2002; McGrath et al., 1992; Mitchell et al., 2000; Mueller & Thomas, 2001; Pinillos & Reyes, 2009; Shane 1992, 1993; Wennekers et al., 2007). There are two underlying reasons for these findings. First, individualistic societies are less likely to need support from others or conformity to norms (Sexton & Bowman, 1985) because they are motivated by self-interests and the achievement of personal objectives (Pinillos & Reyes, 2009). Accordingly, societies with a larger proportion of

individuals who do not need social support of the group and are motivated by self-concept are more likely to become entrepreneurs. Second, entrepreneurs in individualistic countries will find their surroundings to be encouraging for entrepreneurial behavior because the general public will behave with autonomy, variety, and financial security over order (McGrath et al., 1992). On the other hand, societies where economic activity is primarily collective, exhibit a less conducive environment for entrepreneurship because venturing tasks are likely distributed among many participants (Mitchell et al., 2000).

The positive relationship between individualism and entrepreneurship suggest that countries which value individuality will be more entrepreneurial (Earley and Gibson, 1998; Hunt and Levie, 2002; McGrath et al., 1992; Oyserman et al., 2002; Shane, 1993; Triandis, 1995). Research has shown that high individualist cultures are more accepting of individual achievement and have greater levels of new firm creation (McGrath et al. 1992; Mueller and Thomas 2001; Shane 1992, 1993; Wennekers et al. 2002). The combination of these effects means that countries with a greater acceptance of individuality will have a larger supply of potential entrepreneurs and be more receiving to their entrepreneurial efforts.

Portrayal of Entrepreneurship by Media

In addition to the three categories of tolerance for ambiguity, egalitarian value systems and acceptance of individuality, I identify a fourth category: portrayal of entrepreneurship by media as a determinant of the amount of entrepreneurs in a society. I draw from the mass communications literature to predict how the portrayal of entrepreneurship by media relates to overall levels of entrepreneurship in a country.

The entrepreneurship literature has largely disregarded the relationship between portrayal of entrepreneurship via media and entrepreneurial activity. This inattention is particularly

surprising because there is existing literature on the relationship between mass media communications and societal norms (e.g., McDonald, 2004) as well as literature on the connection between societal norms and entrepreneurship (e.g., Tiessen, 1997). One exception is the Hindle and Klyver study (2007) which found a positive association between volume of entrepreneurship media stories and people running young businesses (greater than 3 months but less than 24 months old). Their findings are well-matched with the 'reinforcement model' in the mass communications literature. The reinforcement model conjectures that media reinforces opinions, ideas and values of audience members. Following their framework, I hypothesize the positive portrayal of entrepreneurship by media will reinforce societal values pertaining to entrepreneurship, therefore directly and indirectly affecting national levels of entrepreneurship.

In Klapper's (1960) reinforcement model media messages are capable of reinforcing ideas, values and attitudes which persons already possess as a result of other socializing agencies. Consequently, we can assume greater volume of positive media coverage of productive entrepreneurship is a reflection of a society that overall values entrepreneurial behavior. Accordingly, countries that have greater volume of positive media coverage should have a greater amount of entrepreneurs. The volume of positive media coverage will reinforce entrepreneurial behavior by highlighting the success of entrepreneurs (Hindle and Klyver, 2007), which will directly strengthens the ideology that success is achievable to individuals who are able to apply their unique vision and expertise to a new opportunity. Furthermore, entrepreneurs in countries that have greater amounts of positive media coverage of entrepreneurs indirectly create an environment, which is more conducive to new venture creation by encouraging public acceptance of entrepreneurship.

The representation of productive entrepreneurship by media is different in each country. Some countries celebrate entrepreneurship, frequently featuring stories on successful new ventures while other countries rarely showcase the success of entrepreneurs (Reynolds et al., 2004). Societies with greater amount of media coverage on productive entrepreneurship reinforce the behaviors and attitudes of citizens who have a predisposed toward entrepreneurship (Klapper, 1960) and will result in a larger pool of potential entrepreneurs.

Socio-cultural values drive both productive and unproductive entrepreneurship

The socio-cultural literature holds that the variation in entrepreneurship results from differences in societal norms and has implicitly assumed that this entrepreneurship is productive. However, as Baumol (1990) proposes the exercise of entrepreneurship is not always productive (rent-creating) and can sometimes be unproductive (rent-shifting). Hence, if entrepreneurship is considered "the imaginative pursuit of position, with limited concern about the means used to achieve the purpose…" (Baumol, 1990; pg. 909) then the same socio-cultural values which lead to productive entrepreneurship can also lead to unproductive entrepreneurship. Accordingly, the logic used for the four identified pro-entrepreneurial socio-cultural values – tolerance for ambiguity, egalitarian value system, acceptance of individual, and portrayal of entrepreneurship by media – should not only increase levels of productive entrepreneurship but also increase levels of unproductive entrepreneurship.

Unproductive entrepreneurship requires a tolerance for ambiguity because unproductive entrepreneurs are working in ambiguous situations where the penalties for their actions may be even higher than the risk of losing money (i.e. jail time). Unproductive entrepreneurs make decisions and take actions with limited information on the probability of being exposed for running their unregistered businesses. Countries that are more accepting of ambiguity will have

more individuals willing to enter into unknown ventures. To such a degree, people in societies that are more comfortable with ambiguity may view the risk of unproductive entrepreneurship as acceptable when the perceived opportunities are high.

Entrepreneurs will perceive unproductive entrepreneurship as acceptable when it offers the biggest opportunity for capturing rents (Murphy, et al., 1991). Unproductive entrepreneurs in egalitarian value system societies will have confidence in their distinct capabilities to act and perceive themselves as 'like productive entrepreneurs' in their innovative endeavors. Entrepreneurs in egalitarian value system societies are more likely to hold the belief that anyone regardless of their type of activity should be rewarded for their efforts and consequently will seek disproportionate rewards for identifying opportunities even if those discoveries are in the form of unregistered businesses. To this logic, entrepreneurs in countries categorized as having egalitarian value systems may view the risk of unproductive activities as the better chance for success when the prospect for rent capturing is high.

Unproductive entrepreneurship requires independence, self-reliance and resourcefulness. The unproductive entrepreneur is a self-motivated individual who believes he has the distinguishable competency to be an entrepreneur in whichever type of entrepreneurship offers him the most opportunities. Unproductive entrepreneurs do not need social support of the group particularly from those running registered firms to engage in unproductive activities. Entrepreneurs residing in societies that are more accepting of individuality, value autonomy and variety, may engage in unproductive activities over productive if the perceived results are greater.

Additionally, the amount of positive media coverage on productive entrepreneurship heightens the awareness that individuals who act on entrepreneurial opportunities are rewarded

for their actions. The limited literature on the relationship between media and entrepreneurship has focused on productive entrepreneurship alone. Yet, the same logic used to associate the reinforcement of productive entrepreneurship by means of media coverage may be applied to unproductive entrepreneurship as well. Positive media messages that reinforced entrepreneurial ambition may not equate to productive outcomes. If media message are reinforcing the entrepreneurial drive and entrepreneurs find the easiest way to apply their unique entrepreneurial vision and expertise are in the form of unproductive allocations then the entrepreneur may engage in unproductive entrepreneurship over productive entrepreneurship.

As previously specified, this dissertation theorizes socio-cultural values of a country as an umbrella paradigm. Thus, socio-cultural value systems are pro-entrepreneurial when there are higher tolerances for ambiguity, more egalitarian value systems, stronger acceptance of individuality and greater levels of media coverage of entrepreneurship. This logic leads to the following hypotheses:

(H1a) the greater level of pro-entrepreneurial values in a country the greater the level of productive entrepreneurship

(H1b) the greater level of pro-entrepreneurial values in a country the greater the level of unproductive entrepreneurship

CHAPTER 3: THE ALLOCATION OF ENTREPRENEURIAL ACTIVITY – THEORY AND HYPOTHESES

In different countries and time periods, talented people chose entrepreneurship as an occupation when it provides the greatest rewards for being a superstar (Murphy et al., 1991). Entrepreneurs are defined as persons who are ingenious and creative in finding ways that add to their own wealth, power, and prestige and may or may not be overly concerned with whether or not their activities are productive to society as a whole (Baumol, 1990). Consequently, in order to understand the contribution of entrepreneurship to economic wealth we must first recognize the full range of entrepreneurial activities and the role of institutions (Sobel, 2008).

Baumol (1990) and others (e.g., Murphy, 1991) propose that the 'rules of the game' (North, 1990) determine the relative payoffs to different entrepreneurial activities and accordingly entrepreneurial behavior will be directed toward productive or unproductive in a manner that corresponds to the variations in the rules of the game. Entrepreneurs will allocate their efforts toward productive activities when the incentive system makes being a productive entrepreneur more beneficial than unproductive. As a result, the allocation of entrepreneurial effort is strongly effected by policy (e.g., Glaser et al., 2003; Johnson et al., 1997). The institutional context in which entrepreneurs are embedded has a substantial impact on the contribution that entrepreneurs make to economic growth (Bowen & De Clercq, 2008).

The Allocation of Entrepreneurship

The entrepreneurship literature overall views entrepreneurial activity as economically beneficial because entrepreneurs are the actors who create organizations that yield new jobs, increase trade, and generate or accelerate innovative ideas (Arzeni, 1998; Bates & Dunham, 1993; McDougall & Oviatt, 1997), which in turn leads to economic growth. But, not all entrepreneurship is productive – entrepreneurs can channel their energies toward unproductive

activities ranging from unofficial firms to criminal enterprise. Because the exercise of entrepreneurship can sometimes be unproductive or even destructive it is necessary to define the distinction between productive and unproductive entrepreneurial activities.

In previous literature, the distinction among productive, unproductive and destructive entrepreneurship is the difference between rent-creating, rent-shifting and rent-destroying, respectively (Desai & Acs, 2007). Productive entrepreneurship is rent-creating because it creates rents for both the entrepreneur and the economy (e.g., new innovation, new firm). Unproductive entrepreneurship is rent-shifting because it benefits only the entrepreneur without benefiting society (e.g., counterfeiting, unofficial firms). Destructive entrepreneurship is rent-destroying because it is detrimental to society and decreases economic activity (e.g., criminal activity). In this section, I define and describe these three types of entrepreneurship.

Productive Entrepreneurship

Entrepreneurship is commonly viewed as a significant stimulus of positive outcomes at both the firm level and the society level (Ireland and Webb, 2007) because it creates jobs, advances technology, and revives consumer welfare (Birley, 1986; Zahra, 2005, Gudeman, 1992; Inglehart & Baker, 2000). The entrepreneur's role in the economy has been studied for many centuries with significant contributions from Cantillon, Say, Mill, Knight, Schumpeter and Kirzner (Sobel, 2008). Each of these scholars, among others, advanced our understanding of the positive and productive relationship between the entrepreneur and the economy.

Cantillon was among the first economic writers to regard an economy in terms of classes of individuals (landlords, laborers, and entrepreneurs); each defined by a major economic function (Hébert, 1985). Entrepreneurs differed from landlords and laborers because they lived with uncertainty (Hébert, 1985 citing Cantillon, 1931). Kirzner (1973) narrowed Cantillon's

assessment by viewing the function of the entrepreneur as a person with alertness to profit opportunities. In such a way, entrepreneurs differed from other individuals because of their alertness of unnoticed opportunities unrelated to a need for capital or resources.

Jean Baptiste Say described the function of the entrepreneur as the individual who shifts economic resources out of an area of lower and into an area of higher productivity and greater yield (Say, 1880 [translated by Prinsep & Biddle, 1971]). Mill (1848) saw the function of the entrepreneur to be the person who was exposed to the most risk. Knight (1921) argued instead that entrepreneurs were not exposed to risk, something that you could predict the probability of triumph, but instead acting under true uncertainty, a situation where it is impossible to estimate or predict the probably of success. In Knight's (1921) view, entrepreneurs are rewarded higher distributions of payments in society for their sound judgment on entrepreneurial opportunities.

In lines with Knight (1921), Schumpeter countered that entrepreneurs are combiners who do not necessarily bear all the risk (Carland et al, 1988). Schumpeter (1934) built on Say's (1880) interpretation of the entrepreneur by describing the function of the entrepreneurs to "reform or revolutionize the pattern of production" The entrepreneur creates greater return than others "by exploiting an invention or, more generally, an untried technological possibility for producing a new commodity or producing an old one in a new way, by opening up a new source of supply of materials or a new outlet for products, by reorganizing an industry and so on" (pg. p. 132). To Say (1880) and Schumpeter (1924), the entrepreneur is the change agent that moves the economy forward.

The field of entrepreneurship is rooted in the acceptance that entrepreneurial activity promotes economic growth and development (Minniti, 2008). We observe this perception from the earliest research of entrepreneurship (e.g., Cantillon, 1931) to the more recent work (e.g.,

Bowen and De Clercq, 2008). Traditionally, scholars viewed the function of the entrepreneur as positive for the economy because when entrepreneur endure uncertainty and are alert to opportunities they are able to shift low profits to greater returns and reformed or revolutionized the pattern of production. More recently scholars have viewed the function of the entrepreneur as the society's hypothesis testers who try out alternative combinations so others can learn from their successes and failures (McGrath, 1999), and as 'knowledge filters' transforming inventions into commercially viable products and process (Acs et al., 2004).

Unproductive Entrepreneurship

The assumption that entrepreneurial activity is always economically beneficial is challenged by the theory of the allocation of entrepreneurship. Baumol (1990) wrote:

> "Entrepreneurs are always with us and always play some substantial role. But there are a variety of roles among which the entrepreneur's efforts can be reallocated, and some of those roles do not follow the constructive and innovative script that is conventionally attributed to that person. Indeed, at times, the entrepreneur may even lead a parasitical existence that is actually damaging to the economy" (Baumol, 1990: pg. 894).

Baumol's (1990) theory of the allocation of entrepreneurship is based off of Schumpeter (1934). Schumpeter (1934) defines entrepreneurship as the carrying out of new combinations which takes the various forms of: introduction of a new good, introduction of a new method of production, opening of a new market, conquest of a new source of supply of materials or goods and the carrying out of a new organization (pg. 66). Baumol refines Schumpeter model by proposing that entrepreneurial effort can be allocated among productive, unproductive or destructive forms.

In the 1990s, other scholars studied the allocation of entrepreneurially resources. For example, Murphy et al. (1991) put forward that entrepreneurs have a choice of either starting a new firm (productive entrepreneurship) or becoming rent shifters (unproductive entrepreneurship). As a consequence, the growth of a country is dependent on getting the ablest people to the productive sector of the economy. Murphy and colleagues (1991) polished Lucas' (1978) view that when high ability people start a new firm they improve current productive techniques, which will be imitated and subsequently all productivity rises.

In terms of entrepreneurship, rent-shifting behavior is commonly understood as "any redistributive activity that takes up resources" (Murphy et al., 1993 pg. 409) ranging from black market exchanges to criminal enterprise (Baumol, 1990, 1996). I categorize this rent-seeking behavior into the activities of the informal economy (Ahumada et al., 2007) and define the informal economy as economic activities that avoid regulation or observation (Del' Anno, 2003; Feige, 1989). These activities may include not registering a firm after inception, not reporting income from self-employment or other unreported work, employment discounts or fringe benefits as well as the trade of stolen goods, drug dealings, prostitutions, gambling, smuggling and fraud (Lippert and Walker, 1997; Schneider, 2002).

Unproductive entrepreneurship refers to rent-shifting behaviors that do not benefit society as a whole but instead benefit exclusively the individual entrepreneurs. For example, a steel entrepreneur might react to competition by "trying either to find a better way of producing steel (productive entrepreneurship), or by lobbying for subsidies, tariff protection, or filing legal anti-trust actions (unproductive entrepreneurship)" (Sobel, 2008 pg. 642). When talented people become rent shifters most of their private returns come from redistribution of wealth from others

and not from wealth creation. As a result, talented people do not improve technological opportunities and the economy stagnates (Murphy et al., 1991).

The literature which includes destructive entrepreneurship implies it to be "more bad" than unproductive entrepreneurship, but makes no specific comment on the nature or effect of such activity (Desai & Acs, 2007). I view destructive entrepreneurship as a part of the unproductive category because a distinction among bad and 'more bad' is not necessary – entrepreneurship is either productive, benefiting society, or it is not. This dissertation will focus on the unproductive allocation of entrepreneurial activity which is "not positive" and therefore destructive entrepreneurship will be labeled under the broad umbrella category of unproductive entrepreneurship.

This suggestion of grouping destructive under the umbrella of unproductive is not intended to discount any work on destructive entrepreneurship. The literature on destructive entrepreneurship is in the early stage of theory development and has not been elaborated in definition or theory. The distinction between destructive entrepreneurship and unproductive entrepreneurship proposed by Desai and Acs' (2007) is that destructive entrepreneurship has a negative effect on GDP (individual captures economic rights and reduces joint monetary surplus) as opposed to unproductive entrepreneurship which has a neutral effect on GDP. Furthermore, destructive entrepreneurship is rent-destroying because it stifles innovation and creates inefficiencies in the economy such as corruption.

Review of Empirical Tests: Allocation of Entrepreneurship

As stated in the contribution section, few papers have empirically tested Baumol's theory (1990). In this next section, I review the papers that have empirically tested the allocation of entrepreneurship theory and their contributions, limitations and potential for future work.

Baumol's (1990) pivotal piece "Entrepreneurship: Productive, Unproductive and Destructive," in the *Journal of Political Economy* has been cited over 500 times (Web of Science) but only three papers, to my knowledge, have empirically tested his propositions. Sobel (2008) puts forward that the lack of empirical papers is due to the fact that all three variables – productive, unproductive, and destructive - are unobservable. Because of the difficulty in distinguishing among the various allocations, many researchers sidestep the distinction by focusing on start-ups only (e.g., Bjornskov and Foss, 2008) and test the influence of a country's institutional environment on productive entrepreneurship only (e.g., Aidis et al., 2008). The few papers (Capelleras, et al., 2008; Murphy et al., 1991; Sobel, 2008) that test allocation of entrepreneurship literature each have their own contributions and limitations.

Murphy and colleagues (1991), Capelleras and others (2008) and Sobel (2008) investigate the allocation of entrepreneurship literature in three diverse ways. These papers ask three different research questions. Murphy (et al., 1991) asks what determines the attractiveness of an occupation to talent. Capelleras (et al, 2008) questions if the allocation of entrepreneurship changes per the rules of the game or if the quantity of entrepreneurship corresponds with the types of regulation. Sobel (2008) investigates the relationship between quality of state political and legal institutions and productive and unproductive entrepreneurship. All three of these papers find support for the theory, the differences among them is the research question asked and the level of sophistication of the empirical measures utilized.

In these acknowledged empirical papers (Capelleras, et al., 2008; Murphy et al., 1991; Sobel, 2008) productive entrepreneurship is measured as the percentage of college students majoring in engineering (Murphy et al., 1991), total number of registered firms (Capelleras et al., 2008) and the multi-dimensional measure including venture capital investments per capita,

patents per capita, growth rate of self-employment activity, and establishment of new firms (Sobel, 2008). Unproductive entrepreneurship is measured as the percentage of college students majoring in law (Murphy et al., 1991), total number of non-registered firms determined by a survey asking owners if they were registered for value-added tax (Capelleras, et al., 2008), and the more multifaceted measures of total number of political and lobbying organizations (Sobel, 2008). Destructive entrepreneurship was not measured in any of these three studies.

Measures used to capture the 'rules of the game' (North, 1990) which determine the allocation of entrepreneurial effort toward productive or unproductive were the costs in terms of time and money to establish a new business (Capelleras et al., 2008) and an institutional quality index (Karabegovic and McMahon, 2005) which includes the extent to which states have secure private property rights, a fair and balanced judicial system, contract enforcement, small government sectors and effective limits on government's ability to transfer wealth through taxation and regulation (Sobel, 2008). Murphy (et al., 1991) did not test the institutional context but instead compared the allocation of talent toward entrepreneurship (college students majoring in engineering) as opposed to rent-shifting (college students majoring in law) to GDP growth.

The third measure, the allocation of entrepreneurship, is based off of the assumption that the distribution of productive to unproductive will fluctuate, depending on rules and regulations, instead of the quantity of entrepreneurs changing. The ratio between productive and unproductive entrepreneurship is measured by a comparison of total number of college student majoring in engineering set against those majoring in law to the GDP per capita of a country (Murphy et al, 1991) and a self-calculated net entrepreneurial productivity (NEP) score which normalized both variables (productive and unproductive) to compute a single index number so that a comparison between productive and unproductive activities is attainable (Sobel, 2008).

Since Capelleras (et al., 2008) tests the assumption of the theory, he and his colleagues do not compute the difference between productive and unproductive but instead compare countries with high regulation to low regulation. They find that firms starting in high-regulated countries are larger at start-up and subsequently grow more slowly but when all firms (non-registered too) are included, these differences disappear. Accordingly both initial size and subsequent growth are remarkably similar in high and low regulated countries. These three empirical pieces show support for the assumption and the prediction of the theory - the rules and regulations of a country have a great impact on the levels of productive relative to unproductive entrepreneurship.

While these papers (Capelleras, et al., 2008; Murphy et al., 1991; Sobel, 2008) provide a good starting point for empirically testing the propositions of the of allocation of entrepreneurship literature, each of them can be improved upon. First and most critical is the operationalization of these concepts. Many of the measures used to test the theory of the allocation of entrepreneurship are problematic. For example, Murphy (et al., 1991) uses the number of college students majoring in law as a proxy for the extent of rent shifting behavior and acknowledges that "although lawyers do different things in different countries, and undergraduate enrollments might not be a good proxy for the extent of each activity; these are the best measures of rent shifting and entrepreneurship we could find" (pg. 523). However, lawyers can be viewed as the transaction cost engineers whose function is to act as intermediaries designing transaction cost efficient structures through which to carry out productive activities (Gilson, 1997). Sobel (2008) measure rent shifting entrepreneurship - number of political and lobbying organizations but compares different states in the United States only.

Furthermore, there are other empirical works which claims to test the theory but only truly examine part of it. For instance, Bowen and Clercq (2008) report statistical support for Baumol's thesis that "a country's institutional characteristics influence the allocation of entrepreneurial endeavors" (page 759). Yet, the authors test only productive entrepreneurship defined as number of start-ups that expect to hire at least 20 people within the first 5 years of business. One of the main reasons for so few empirical pieces, and partial studies of the theory, is the lack of clarity in the conceptualization and operationalization of productive entrepreneurship, unproductive entrepreneurship and the rules and regulation variables.

In Chapter 1, I hypothesized the direct relationship between societal values and preferences with the rates of entrepreneurship, productive and unproductive within each country. In Chapter 2, I incorporate the rules and regulation literature to hypothesize how the 'rules of the game' (North, 1990) provide the incentives that shift the allocation of entrepreneurially effort toward either productive or unproductive entrepreneurship.

All countries have policies that restrict entrepreneurship so formalizing the estimations and testing their significance is important for policy and research.

Krueger (1974, pg. 302-303) writes:

> "One can conceive of a continuum between a system of no restriction and a perfectly restricted system. With no restriction, entrepreneurs would seek to achieve windfall gains by adopting new technologies, anticipating market shifts correctly and so on. With perfect restrictions, regulations would be so all-pervasive that rent seeking would be the only route to gain. In such a system, entrepreneurs would devote all of their time and resources to capturing windfall rents. While neither of these extreme types could ever exit, one can perhaps ask where there might be some point along the continuum which the market fails to perform its allocated function to any satisfactory degree. It will remain for further work to formalize these conjectures and to test their significance"

The optimal level of institutional framework for a productive entrepreneur is when a country provides the maximum ability for the entrepreneur to capture rents from his efforts at the

minimal possible cost. Along these lines, in this next set of hypothesis, I work under the prediction that the closer to optimal each of the five identified rules and regulations in a country the greater the impact of the socio-cultural measure on the level of productive entrepreneurship relative unproductive entrepreneurship.

By integrating these literatures, I am able to predict the allocation of entrepreneurial effort while taking into account the amount of entrepreneurs (the quantity for each country). Separately each of these literatures provides only partial explanations for why levels of entrepreneurship vary across countries. Taken together we are better able to predict and explain the variation of the amount and allocation of entrepreneurship.

Hypotheses: The Allocation of Entrepreneurship - Rules and Regulations

Having reasoned that the same pro-entrepreneurial socio-cultural values drive both productive and unproductive entrepreneurship, I now draw from the rules and regulations literature for the logic that entrepreneurship can be allocated among different activities (e.g. Bowen and De Clercq, 2008). I argue that in deciding whether to pursue entrepreneurship, an entrepreneur will consider the costs he must incur to pursue productive entrepreneurship and the opportunity to capture rents from his efforts. I put forward that as the rules and regulations under examination in this study improve the stronger the relationship between pro-entrepreneurial socio-cultural values and productive entrepreneurship and the weaker the relationship between those same values and unproductive entrepreneurship. In this dissertation improved rules and regulations are environments in which the productive entrepreneur can retain the most benefits from his efforts with the lowest costs.

Baumol (1990) and others (e.g., Murphy, 1991) propose that the 'rules of the game' (North, 1990) determine the relative payoffs to different entrepreneurial activities and

accordingly entrepreneurial behavior will be directed toward productive or unproductive activities in a manner that corresponds to the variations in the 'rules of the game'. Entrepreneurs will allocate their efforts toward productive activities when the incentive system makes being a productive entrepreneur more beneficial than unproductive. As a result, the allocation of entrepreneurial effort is strongly effected by policy (e.g., Glaser et al., 2003; Johnson et al., 1997). It is the institutional context in which entrepreneurs are embedded that has a substantial impact on the contribution that entrepreneurs make to economic growth (Bowen and De Clercq, 2008).

The logic used for this section is improvements in rules and regulations in a country are defined as those rules which increase the level of productive entrepreneurship relative to unproductive entrepreneurship. An improvement in rules and regulations in a country will lead to a stronger relationship between pro-entrepreneurial socio-cultural values and productive entrepreneurship and a weaker relationship between those same values and unproductive entrepreneurship. I build on Baumol's (1990) broad reference to "rules and regulations" and identify five specific sets of institutional factors that steer the allocation of entrepreneurial resources toward productive or unproductive activities.

Administrative Barriers to Entry

Starting a new business requires the permission of a variety of government bodies (Hawkins, 1993) and such approvals come in the form of time-consuming government procedures (Ciccone and Papaioannou, 2007). Existing research has shown a strong link between the amount of administrative barriers to entry required to start a new firm in a country and levels of productive entrepreneurship (e.g., Aidis et al., 2008). Countries that encourage entrepreneurship by having minimal administrative barriers to entry are likely to enable

individuals to engage in productive behavior because the cost in doing so is minimal. On the other hand, countries that make engaging in productive entrepreneurship more costly will have individuals who view productive entrepreneurship as an expensive endeavor and may decide to allocate efforts in an unproductive manner to avoid the expense, in terms of time and money, to be a productive entrepreneur.

There are two prominent theories that explain the role of regulation, and in particular administrative barriers to entry, in economic theory. These include public interest theory (Pigou, 1938) and public choice theory (e.g., Stigler, 1971). Pigou's (1938) public interest theory predicts that stricter regulation of entry is associated with superior outcomes. The theory holds that if markets are unregulated they will exhibit frequent failures and accordingly it is the role of government to protect the public by means of regulation (Djankov et al, 2002). In terms of entrepreneurship, public interest theory predicts stricter regulation of new entrants to be beneficial to society because it requires minimum standards be met, through a greater number of procedures, and approval granted before new businesses can transact with the general public and other businesses.

The other perspective is the public choice theory (Peltzman 1976; Tullock 1967; Stigler 1971) which predicts that stricter regulation of entry is associated with inferior outcomes. The theory, with two schools of thought – theory of regulatory capture (Stingler, 1971) and tollbooth view (De Soto 1990; McChesney, 1987; Shleifer and Vishny, 1993.) – holds that stringent regulation is inefficient and unproductive to society. In terms of entrepreneurship, public choice theory predicts that stricter regulation of entrants is detrimental to society because it only benefits industry incumbents who wish to keep out new competitors (Theory of Regulatory

Capture) or politicians and bureaucrats who desire rents for themselves via bribes (Tollbooth View).

Using the rationality of public interest theory and public choice theory plus understanding that government restrictions on economic activity are a universal fact of life (Krueger, 1974), administrative barriers of entry may be beneficial (public interest theory) and detrimental (public choice theory). The administrative barriers of entry are beneficial in requiring minimum standards for operations be met but become detrimental when the amount of administrative barriers increases to a level too costly for the entrepreneur.

The amount administrative barriers to entry that an entrepreneur must bear vary between countries (Djankov et al, 2002). Countries with fewer procedures and administrative requirements for business start-ups are environments in which starting a new firm is more easily accomplished (Botero et al., 2004; Klapper et al., 2006). Conversely, countries with numerous procedures and high administrative fees required to start a new firm are environments in which starting a new firm is much more challenging (De Clercq et al., 2010; Puffer et al., 2010).

Productive entrepreneurship requires dealing with administrative barriers to entry. In 1983, De Soto conducted a study where his research team followed all necessary bureaucratic procedures to set up a one-employee garment factory in Lima (De Soto, 1989). It took 289 days and $1,231, the equivalent of three years of wages, for the factory to be in a legal position to start operations (Djankov, 2009). “When legality is a privilege available only to those with political and economic power, those excluded—the poor—have no alternative but illegality,” writes Mario Vargas Llosa in the Foreword to de Soto’s (1989) book (Djankov, 2009). Accordingly, the allocation of entrepreneurial effort is strongly affected by the amount administrative barriers to entry.

This relationship suggests that when the amount administrative barriers to entry to start a firm are high individuals will view this as a major constraint for being a productive entrepreneur and the more likely he will choose to allocate his resources toward unproductive entrepreneurship over productive entrepreneurship. This logic leads to the following hypotheses:

(H2a) The less administrative barriers to entry required to start a business in a country, the stronger the relationship between pro-entrepreneurial socio-cultural values and productive entrepreneurship

(H2b) The less administrative barriers to entry required to start a business in a country, the weaker the relationship between pro-entrepreneurial socio-cultural values and unproductive entrepreneurship

Property Rights and Enforcement of Contracts

Productive entrepreneurship requires secure property rights and the enforcement of contracts. Without secure property rights, individuals are required to allocate effort away from productive activities in the effort to secure legally unprotected property (DeSoto, 1989). The more costly it is, in terms of protecting property rights and enforcement of contracts for an entrepreneur to engage in productive entrepreneurship, the more likely he will choose to allocate his resources toward unproductive entrepreneurship over productive entrepreneurship.

Property rights refer to "the degree to which government creates the right to private property and enforces the laws written to protect those rights" (McMullen et al., 2008 pg. 883). Ownership of a firm provides residual rights of control over the firm's assets including the right to decide how assets are used to the extent that a particular usage has not been specified in the initial contract (Hart and Moore, 1990). Consequently, the extent to which property rights are secure and contracts enforceable determines entrepreneurs' rights to a newly established firm and

rights to make exchanges in the market. When a transaction occurs in the marketplace, the value of the property rights determines the value of what is exchanged (Demsetz, 1967). DiLorenzo (2004, pp. 20–21) writes, "When it comes down to it, what are being traded in a capitalist economy are property rights—the ownership rights in goods and services." The protection of private property rights and the enforcement of contracts are of fundamental importance for entrepreneurship and economic growth (Acemoglu et al., 1994; North, 1981; Rodrik, 2004; Rosenberg and Birdzell, 1986).

Although there is a large amount of literature on the role of property rights to individuals, firms and countries (De Soto, 1989; Knack and Keefer, 2006), the link specifically to entrepreneurship is limited. Yet, evidence exists that the inability of institutions to protect property rights leaves productive activities vulnerable to predation and may act as a deterrent for an entrepreneur. Extortion by organized crime groups takes place in almost all countries in varying degrees but is particularly prevalent in countries that lack property right protection. Hence, the secure protection of private property rights is of central importance for entrepreneurs.

There are observed differences in the amounts of protection of property rights across countries. Certain countries strongly protect private property rights and create environments where firms will spend a large amount of resources on defending patenting instead of creating new innovations. Other countries have *secure private property* rights which allows for voluntary exchanges based on contracts. On the other spectrum are countries where property rights are insecure and anarchy exists (e.g., Zimbabwe). Institutions that protect private property enable talent to be allocated toward productive entrepreneurship where it generates the highest value to the society (Murphy et al., 1991).

In summary, the literature suggests that secure property rights enable productive entrepreneurs to create value in the marketplace. Conversely, insecure property rights will act as a limitation for the productive entrepreneur. When such limitations exist, the likelihood of an entrepreneur becoming unproductive will increase. This logic leads to the following hypotheses:

(H3a) The more well-defined the property rights and enforcement of contracts, the stronger the relationship between pro-entrepreneurial socio-cultural values and productive entrepreneurship

(H3b) The more well-defined the property rights and enforcement of contracts, the weaker the relationship between pro-entrepreneurial socio-cultural values unproductive entrepreneurship

Bankruptcy Laws

Entrepreneurship requires understanding bankruptcy laws because "part of the new venture value creation efforts hinges on the ability to harvest that value at some point(s) in the future" (Holmberg, 1991, p. 203) and the possibility of exit by failure is one of those potential future outcomes. Consequently, the pro-entrepreneurial bankruptcy laws that are more forgiving to the new business owners are of vital significance for entrepreneurs. The more costly it is, in terms of dealing with a failed business, for an entrepreneur to engage in productive entrepreneurship, the more likely he will choose to allocate his resources toward unproductive entrepreneurship over productive entrepreneurship.

With hundreds of thousands of firms around the world declaring bankruptcy each year, corporate bankruptcy has become common (Lee et al, 2007) and important to policy makers worldwide. Bankruptcy laws are designed to balance several objectives, including protecting the rights of creditors and other stakeholders, and preventing the premature liquidation of viable

firms (Claessens and Klapper, 2005). These laws include a number of features such as who can file for reorganization or liquidation and the weight given to the debtor and creditors (Armour and Cumming, 2008). One mechanism by which governments have sought to implement entrepreneurial-friendly policies is through forgiving bankruptcy laws (Armour and Cumming, 2008). Forgiving bankruptcy laws limit the personal liability of entrepreneurs and managers of bankrupt firms (Lee et al, 2007).

Entrepreneurial-friendly bankruptcy laws discharge a bankrupt person from debt when creditors are allowed to collect residual assets but may not pursue any remaining claims from the individual (White, 2001). Such laws which discharge bankrupt entrepreneurs are commonly called "fresh start" laws (Ayotte, 2007; White, 2001). In the absence of these laws, bankrupt entrepreneurs can be personally liable for a failed firm. For instance, in Germany, bankrupt entrepreneurs can be liable for unpaid debt for up to 30 years and may even sustain criminal penalties (Fialski, 1994; Ziechmann, 1997). In many Asian countries, most firms do not file for bankruptcy, even when they are losing money, in fear of the consequences of criminal law suit or personal financial harm (Ahlstrom and Bruton, 2004; Carney, 2004; White, 2004).

Legal procedures associated with bankruptcy vary significantly across countries. Certain countries provide partial protection for bankrupt firms while others countries limit the extent to which owners are personally liable for unsuccessful ventures (Lee et al., 2007). Bankruptcy laws can release bankrupt individuals from debt or allow the pursuit of bankrupt entrepreneurs for years (OECD, 1998). Lower bankruptcy costs encourage the creation of new firms and by reducing the stigma of bankruptcy for firms and individuals, entrepreneurs are more likely to start new firms (World Bank, 2012).

There is vast literature on how barriers to entry affect entrepreneurship (e.g., Busenitz et al., 2000; Djankov et al., 2002) but relatively less work on how barriers to *exit* affect entrepreneurship (Lee et al., 2007). Nonetheless, corporate bankruptcy is very common around the world. Lee and colleagues (2007) write "during the 1990s, the annual average number of corporate bankruptcies in Japan was 14,500 (Industry Week, 1998), in France 52,000, in Great Britain 47,000, and in Germany 21,000 (Claessens and Klapper, 2005) [and] in 2001, 38,540 businesses in the United States declared bankruptcy (American Bankruptcy Institute, 2003)" (pg. 257). Many of these bankruptcies are filed by young entrepreneurial firms (Warren and Westbrook, 1999; White, 1990). Accordingly, the ramifications of the legal procedures pertaining to bankruptcy matter to the entrepreneur.

The bankruptcy laws literature provides the logic that ease of exiting a firm is least costly in countries with more forgiving bankruptcy laws. The less costly it is, in terms of dealing with a failed business, the more likely the entrepreneur will allocate his resources toward productive entrepreneurship. This logic leads to the following hypotheses:

(H4a) The greater the leniency of bankruptcy laws for the entrepreneur in a country, the stronger the relationship between pro-entrepreneurial socio-cultural values and productive entrepreneurship

(H4b) The greater the leniency of bankruptcy laws for the entrepreneur in a country, the weaker the relationship between pro-entrepreneurial socio-cultural values and unproductive entrepreneurship

Trade Policies

Trade policies determine the amount of restrictions in the process of entrepreneurship because they set the level of freedom to exchange product and ideas. In places where trade is

restricted the potential entrepreneurs will view being a productive entrepreneur to be a costly endeavor because it is costly to access the world market. The more costly it is, in terms of trade, for an entrepreneur to engage in productive entrepreneurship, the more likely he will choose to allocate his resources toward unproductive entrepreneurship over productive entrepreneurship.

In recent decades, nations have become more interdependent through growth in international trade (Markusen, 1995). The freedom to exchange and experiment, within and across national boundaries, is essential to new combinations of resources in today's globalized world. Sobel (et al., 2007) writes,

> "Barriers to either domestic or foreign trade, by their very nature, reduce the number of combinations that can be attempted through the reduction in the flow of new and unique resources and goods. With a restricted set of potential inputs into the creative process some new combinations that might otherwise be profitable are never found, identified and exploited. Trade in both resources and goods disseminate information, innovation and specialized resources. When that flow is restricted, the creative entrepreneurial process suffers, and so does economic progress" (pg. 223-224).

As described by Sobel (et al, 2007) domestic or foreign trade enable the creative destructive process of entrepreneurship (Schumpeter, 1934). Consequently more entrepreneurial activity would be expected in places where trade is not restricted.

Trade openness is becoming increasingly more relevant to entrepreneurs because newly established firms are playing a greater role in international trade (Knight and Cavusgil, 2004). In the international entrepreneurship literature, a research stream on born-global firms has emerged. Born-global firms are young in age, usually small in size, and target international markets where they have little or no experience (Oviatt and McDougall, 1994). They are firms that internationalize rapidly after inception, do not follow the traditional theories of incremental firm internationalization and see the world as their market (Cavusgil and Knight 2009). Collectively the emergence of international entrepreneurial firms, born-global firms and the traditional start-

ups that choose to export or import their goods or services, are making trade barriers all the more significant to the entrepreneur.

This relationship suggests that institutional contexts where trade is restricted are places where potential entrepreneurs will view being a productive entrepreneur to be a costly endeavor because they will have restricted access to the world market. In places where trade policies are closed, entrepreneurs will be more likely to allocate resources toward unproductive behaviors because productive entrepreneurship will be less rewarding. This logic leads to the following hypotheses:

(H5a) The greater the openness of trade policies in a country, the stronger the relationship between pro-entrepreneurial socio-cultural values and productive entrepreneurship

(H5b) The greater the openness of trade policies in a country, the weaker the relationship between pro-entrepreneurial socio-cultural values and unproductive entrepreneurship

Labor Markets

Productive entrepreneurship requires dealing with labor regulations because one of the many challenges entrepreneurs endure is the ability to efficiently and effectively manage human resources. Prior studies have shown that flexible labor markets are better environments for new firm creation because of the liabilities of newness and size (Autio, 2005; Baughn and Neupert, 2003). In flexible labor markets (e.g., United Kingdom) entrepreneurs are able to adjust workforce size by hiring or firing employees to meet unexpected demands (Baughn et al., 2008). On the contrary, in more strictly regulated labor markets (e.g., Italy) entrepreneurs are inhibited from making such adjustments (Cornelius and Zhang, 2002; Nickell, 1997; Schuler & Florkowski, 1996). The cost of labor regulation may act as a deterrent for entrepreneurs because

the cost of compliance may be too costly for the small businesses employer (Klapper et al., 2006).

Labor markets are imperfect. Governmental regulations of labor are set as a means to prevent rents being extracted in the employment relationship. Proponents of labor regulation argue that if governments did not intervene then the consequences would be employers abusing workers, discriminating against disadvantaged groups, underpaying workers who are immobile, and/or firing workers without cause (Botero et al, 2004). However, labor regulation can be viewed from the potential entrepreneur perspective as well. The overregulated labor market in terms of too favorable to the employee (e.g., difficulty in firing poor performing employees) can be costs to the potential entrepreneur.

The complex system of laws and institutions set to protect the interests of workers differs across countries (Van Stel et al., 2007). For example, many West European countries, such as Germany, France and Belgium impose significant notice and severance pay requirements on employers who lay off workers (Abraham and Houseman, 1994). In contrast, places like the United States do not require advance notice of layoffs and consequently workers often received little or no warning prior to being let go and those permanently laid off frequently receive no severance. Nonetheless, workers in the U.S. may seek payments from the unemployment insurance system. Therefore, the difference of labor market regulations across countries is in the entity that will compensate the laid off worker – responsibility of the public system or the firm itself.

Entrepreneurship requires the ability to effectively and efficiently manage human resources to act in accordance with unforeseen demand. Inflexible labor markets are where prospective entrepreneurs may view becoming a productive entrepreneur to be a costly allocation

of effort. The more costly it is, in terms of hiring or firing employees, for an entrepreneur to engage in productive entrepreneurship, the more likely he will choose to allocate his resources toward unproductive entrepreneurship over productive entrepreneurship. Accordingly, any impediments to an entrepreneurs' ability to efficiently and effectively manage human resources matter to the entrepreneur. This logic leads to the following hypotheses:

(H6a) The greater the flexibility of labor markets in a country, the stronger the relationship between pro-entrepreneurial socio-cultural values and productive entrepreneurship

(H6b) The greater the flexibility of labor markets in a country, the weaker the relationship between pro-entrepreneurial socio-cultural values and unproductive entrepreneurship

CHAPTER 4 – DATA AND METHODS

This dissertation is distinct in combining data sources specific to entrepreneurship with more general sources to develop reliable indicators for socio-cultural measures, the regulatory environment, and the allocation of productive and unproductive entrepreneurship across countries. To analyze the empirical predictions, I construct a country-level longitudinal dataset that integrates indicators of entrepreneurship productivity (e.g., Global Enterprise Monitor) with more general country-level economic and socio-cultural indicators (e.g., World Bank Survey) from 2004-2008 across the following developed and emerging nations: Argentina, Australia, Brazil, Canada, Chile, China, Colombia, Croatia, Finland, Germany, Hungary, India, Japan, Latvia, Mexico, New Zealand, Norway, Russia, South Africa, Spain, Sweden, Turkey, Uganda, United States, and Uruguay.

Data

Dependent Variables

This dissertation employs two cross-country comparative dependent variables: the national rate of productive entrepreneurship and national rate of unproductive entrepreneurship.

Productive Entrepreneurial Activity

To measure productive entrepreneurship I draw from the world's leading, and most comprehensive, study of productive entrepreneurial dynamics – the Global Enterprise Monitor (GEM) project (GEM, 2011). The GEM project is a partnership between London Business School and Babson College that has grown from covering 10 countries in 1999 to more recently including over 175,000 people in 59 economies. GEM seeks to measure differences in levels of entrepreneurial activity between countries to uncover the factors leading to levels of

entrepreneurship, and provides policy suggestions that may enhance national levels of entrepreneurship.

This dissertation uses the GEM project measures of productive entrepreneurship named "Total early-stage Entrepreneurial Activity" (TEA). The TEA measure comprises the sum of all entrepreneurs in given year in a country that have taken the necessary steps to establish a new firm but have not yet paid wages or salaries, called nascent entrepreneurs, and those that have paid wages or salaries, called new business owners. Despite if they have paid wages are not they have established a firm which has been in business for a period greater than three months but less than 24 months (GEM 2008 report). Thus productive entrepreneurship is measures as the sum of all entrepreneurs in a given year in a country which have established a new firm:

Productive Entrepreneurship = (Total nascent entrepreneurs) + (Total new business owner-managers)

It is important to note that the number of individuals establishing new firms may not indicate the total number of businesses in formal operation in a given year because some people may be running multiple businesses or some newly established business may have multiple founders (GEM, 2008). Despite this small limitation, the GEM database is still the best proxy for capturing estimates of total levels of productive entrepreneurship in a country in a given year.

In my dataset the countries with the most amount of productive entrepreneurship are Uruguay, India and Columbia. The countries with the least amount of productive entrepreneurship are Japan, Hungary and Russia.

Unproductive Entrepreneurial Activity

Constructing a reliable measure for the second dependent variable, 'unproductive entrepreneurship', is more challenging as individuals engaged in unproductive entrepreneurship may not wish to be identified, thus there may be a problem with observability. The estimation of the informal economy activities can be considered as a "scientific passion for knowing the

unknown" (Schneider and Klinglmair, 2004 pg.4). Although challenging, there are several approaches for measuring the size of the informal economy (unproductive entrepreneurship). For a review of older and alternative measures, not used in this dissertation with their description, advantages, disadvantages, assumptions and limitations; see Appendix 1.

To overcome these challenges, I employ two indirect measures of unproductive entrepreneurship. First, I draw from Schneider and colleagues (2010) using the size of the unofficial economy (derived via structural equation modeling) as a proxy for unproductive entrepreneurship. Schneider and colleagues (2010) estimate the size of the unofficial economy as a percentage of total GDP with the MIMIC approach in Structural Equation Modeling (SEM). Their method is an improvement on previous work, because they created a unique dataset which allows for comparable informal economy empirics. They combine the traditional approaches (e.g., currency approach) with more recent measures to estimate the size of the informal economy for 162 countries.

In my dataset the countries with the most amount of estimated unproductive entrepreneurship are Columbia, Brazil and Argentina. The countries with the estimated least amount of unproductive entrepreneurship are the United States, Japan and New Zealand.

The second measure for unproductive entrepreneurship is from the World Bank Enterprise Survey, which incorporates a question to local managers regarding the degree of competition they face from unproductive entrepreneurs. The World Bank's Enterprise Surveys provide the world's most comprehensive company-level data in emerging markets and developing economies (World Bank, 2012), and are conducted through face-to-face interviews with top managers and business owners in over 130,000 companies in 135 economies. Essentially, this measure captures the manager's perception that competing firms may be

engaged in unproductive activity such as smuggling, breaching intellectual property rights, tax evasion, counterfeiting, and generally skirting regulations or other law prescriptions. This definition fits well with how unproductive entrepreneurship is defined in the literature (e.g. Baumol, 1990).

In my dataset the countries with the most amount of estimated unproductive entrepreneurship as calculated by enterprise are Uruguay, Columbia and Brazil. The countries with the estimated least amount of unproductive entrepreneurship as calculated by enterprise are the Croatia, Hungary and Chile.

Independent Variables

Socio-Cultural Measures: sources

The baseline independent variable (*pro-entrepreneurial values*) which measures the direct effect of pro-entrepreneurial socio-cultural values on productive and unproductive entrepreneurship is an aggregation of key socio-cultural measures from the World Value Survey (WVS) and GEM.

The World Value Survey (WVS) is a worldwide network of social scientists studying societal value systems and how those values impact social and political life. The WVS has conducted surveys in 97 societies that contain almost 90 percent of the world's population. In order to monitor changes, the WVS has executed five waves of surveys, from 1981 to 2007. This dissertation uses wave 3 conducted between 1995 and 1999 to allow for sufficient lags and casual analysis between cultural values and more recent levels of entrepreneurial activity.

Socio-Cultural Measures: variables

The first element of this aggregate measure is *tolerance for ambiguity*. Some countries teach their members that they must learn to live in an 'ambiguous world' (McGrath et al., 1992)

and therefore these individuals develop a higher tolerance for ambiguity. In this study, tolerance for ambiguity is drawn from the WVS survey which assesses a societies' level of comfort with ambiguity based on the degree to which new ideas are preferred to non-changing traditional ideas that persist over long periods of time. This variable is used with its original coding of a range from 1 to 10 where (1) represents "Ideas that stood test of time are generally best" and (10) "New ideas are generally better than old ones".

The second measure (*egalitarian value systems)*, is grounded in the logic that societies with egalitarian value systems socially encourage individual initiative (Pinillos and Reyes, 2009) regardless of individual status or rank. Thus people in these societies feel empowered in regards to freedom and control over their lives. The WVS survey question for this measure asks respondents, "Some people feel they have completely free choice and control over their lives, while other people feel that they have no real effect on what happens to them. Please use this scale where [1] means "none at all" and [10] means "a great deal" to indicate how much freedom of choice and control you feel you have over your life". This variable is used with its original coding of a range from 1 to 10.

The third measure (*acceptance of individuality)*, draws from the reasoning that entrepreneurs are motivated individuals who rely primarily on themselves rather than others to formulate and implement goals. Thus they are commonly categorized as believing in their own abilities and feeling a high level of autonomy. I measure Acceptance of Individuality through the WVS Autonomy Index which calculates the degree of autonomy from four survey questions on child values. The logic is that what we teach our children is a reflection of core values. The WVS provides respondents a list of qualities that children can be encouraged to learn at home and asks which, if any, do you consider to be especially important? Respondents are permitted to

select all of them. The responses are coded as (1) if mentioned and (0) if not and then entered into the autonomy index formula. The four qualities are: (a) Religion/Faith, (b) Obedience, (c) Independence, and (d) Determination/Perseverance. The formula as defined by the WVS is:

Autonomy Index = (Religion/Faith + Obedience) – (Independence + Determination/Perseverance)

The answers range from (-2) to (+2). For example, if both of the 'non-autonomy' responses (Religion/Faith or Obedience) were mention but none of the autonomy responses (Independence or Determination/Perseverance) were selected then the formula would be (1+1) – (0) = 2; and so forth depending on the combination of responses. Because the formula is calculated in a way that higher scores reflect 'non-autonomy' traits and lower scores reflect high autonomy traits, I reverse coded the raw scores by subtracting the given score from 2 so high scores reflect high autonomy and low scores reflect low autonomy.

The final aggregate measure (*portrayal by media*) is derived from the communication literature which postulates media is an outlet that reinforces the value systems of a society (Perse, 2001). Accordingly, the fourth measure of societal values is captured by the overall media coverage of entrepreneurship in a country. To measure this socio-cultural variable, I use the publically available data from the GEM. The GEM study asks: In your country, do you often see stories in the public media about successful new businesses? The answers were compiled as the total percentage average of yes responses. Countries with higher scores are those with greater media coverage of entrepreneurship. This variable is lagged by one year for casual analysis.

Finally, I construct a pro-entrepreneurial socio-cultural index by standardizing and then adding each of the 4 allocative-neutral aggregated variables described above. Thus, my variable "Pro-Entrepreneurial Value" is the sum of all 4 standardized socio-cultural variables.

For an overview of data sources and detailed questions with coding see Table 1 and Table 2, respectively.

Determinants of the Allocation of Entrepreneurially Activity: sources

The regulatory environment of country has been measured in a variety of ways. The data for this dissertation, focused on the costs of productive entrepreneurship and the entrepreneurs' ability to appropriate rents, are collected from the World Bank and the Heritage Foundation. The World Bank, an international financial institution created in 1944, collects macro-level data to develop efficient policies, monitor the implementation of poverty reduction strategies and progress towards global goals. At the World Bank, the Development Data Group coordinates data work to maintain a number of databases. Two of these databases are the World Development Indicators and the Enterprise Survey Data.

World Development Indicators

The World Development Indicators (WDI) presents the most current and accurate global development data available for 216 countries between 1960 and 2010 with 1260 variables. One of these measures is part of the *Doing Business Project*. This project has been conducting research on the ease of doing business since 2004. It is the first quantitative measurement of business regulation. Doing Business records "all procedures officially required for an entrepreneur to start up and formally operate an industrial or commercial business" (World Bank, 2010 pg.1). The laws, regulations and public information on business entry of each country and a list of procedures, including time and cost of setup, is documented by the World Bank. The report covers 183 economies and includes their domestic laws and regulations and administrative requirements for setting up a business. The World Bank's Doing Business Report provides a comparative analysis of rules and regulations across countries.

The Heritage Foundation

The Heritage Foundation measures economic freedom in 10 separate areas, grouped in four broad categories – Rule of Law, Government, Regulatory Efficiency, and Open Markets. Each freedom is scored on a scale of 0 to 100 where higher scores represent greater freedom.

The socio-cultural index variable I developed is interacted with each of the rules and regulation measures to capture the amount and the allocation of entrepreneurship for each of the 25 countries between 2004 and 2008. I make the conjecture that the relationship is linear and thus improvements to rules and regulations (increases) will lead to greater outcomes (more productive and less unproductive). This conjecture is consistent with the previous empirical studies of Baumol's allocation of entrepreneurship theory (e.g. Sobel, 2008).

Determinants of the Allocation of Entrepreneurially Activity: variables

I postulated earlier in this dissertation that there are number of conditions that will moderate the direct effect of socio-cultural values on productive and unproductive entrepreneurship. The first of these moderating effects is administrative barriers to entry which is pulled from the Doing Business Project of the World Bank. This measure is the total number of official procedures required or commonly done in practice to start up and formally operate a firm in the selected country. A procedure is defined as an exchange between the company founders and any external parties. Examples of external parties are government agencies, lawyers, auditors, and notaries. Internal interactions such as those between founders and employees are not counted as procedures. Each individual visit to an office, even if those offices are located in the same building are counted as a separate procedure. Additionally, if several visits to the same office are required then each visit is counted as separate procedures. Exchanges with public agencies (e.g., company seal required) are counted as individual procedures as well. Only

procedures which are required for every type of business are included whereas any industry-specific procedures are excluded.

In my dataset this variable was reverse coded so higher scores represent less administrative barriers to entry. The countries with the least administrative barriers to entry are Australia, Canada and New Zealand. The countries with most administrative barriers to entry are Uganda, Brazil and Argentina.

The second moderating effect, *property rights and contract enforceability*, captures the ability of an individual to accumulate property rights that are secured by 'clear enforceable laws', the degree to which the government enforces those laws, as well as businesses ability to enforce the agreed upon contracts. The source of these data is the Heritage Foundation. The more certain the legal protection of property the higher a country's score and conversely the less certain the legal protection of property the lower a country's score. Scores are on a range from 0-100 with higher scores capturing stronger property rights and enforceability of contracts. The scores are graded according to a list of criteria where a perfect score of 100 represents that "private property is guaranteed by the government, the court system enforces contracts efficiently and quickly, and the justice system punishes those who unlawfully confiscate private property" (Heritage Foundation). A score of 0 are places where "private property is outlawed, and all property belongs to the state. People do not have the right to sue others and do not have access to the courts" (Heritage Foundation). Scores are in increments of 10 moving away from 100 and toward 0 as private property become less guaranteed by the government, court system enforcement of contracts become less efficient and as the justice system becomes less likely to punish those who unlawfully confiscate private property.

In my dataset the countries with the least well-defined property rights and contract enforceability are China, Russia and Uganda. The countries with most well-defined property rights and contract enforceability are Finland, Australia, and the United States.

The third independent moderating variable is *bankruptcy laws* in a country. The World Bank measures bankruptcy law costs by the cents on the dollar recouped by creditors (World Bank, 2012). Following Lee and colleagues (2011), I use the 'rate of recovery from a closing' as a proxy for measuring the degree of an entrepreneur's "fresh start" as specified by the bankruptcy laws. The recovery costs calculate the cents on the dollar claimants (creditors, tax authorities, and employees) recover from an insolvent firm. Assuming that the greater the amount claimants recover from an insolvent firm, the less is recovered by entrepreneurs themselves, thereby the less likely they will have a fresh start (Lee et al., 2011). Scores for cost of bankruptcy range from 0 to 100 cents. I reverse code this measure by calculating fresh start as one dollar (100 cents) minus the rate of recovery (cents per dollar) by others and as done by Lee and colleagues (2007).

In my dataset the countries with the least lenient bankruptcy laws for the entrepreneur (most strict) are Norway, Japan and Canada. The countries with the most lenient bankruptcy laws for the entrepreneur are Turkey, Brazil and Uruguay.

The fourth and fifth moderating variables, respectively *trade freedom and labor flexibility*, are also derived from Heritage Foundation data. The trade freedom component measures the absence of barriers, tariff and non-tariff, on exported or imported goods and services based on the trade-weighted average tariff rate and the non-tariff barriers (NTBs). The equation used is:

$$\text{Trade Freedom}_i = (((\text{Tariff}_{max} - \text{Tariff}_i)/(\text{Tariff}_{max} - \text{Tariff}_{min})) * 100) - \text{NTB}_i$$

The "Trade Freedomi represents the trade freedom in country i; Tariffmax and Tariffmin represent the upper and lower bounds for tariff rates (%); and Tariffi represents the weighted

average tariff rate (%) in country i. The minimum tariff is naturally zero percent, and the upper bound was set as 50 percent. An NTB penalty is then subtracted from the base score" (Heritage Foundation). No penalties are given for countries in which NTBs are not used to limit international trade. Penalties of 5 (NTBs are uncommon, protecting few goods and services, and/or have very limited impact on international trade), 10 (NTBs are used to protect certain goods and services and impede some international trade, 15 (NTBs are widespread across many goods and services and/or act to impede a majority of potential international trade) or 20 (NTBs are used extensively across many goods and services and/or act to effectively impede a significant amount of international trade) are given per the amount of NTBs used. The categories of NTBs used for penalties are quantity restrictions (e.g., export limitations), price restrictions (e.g., antidumping duties), regulatory restrictions (e.g., licensing), investment restrictions (e.g., financial control), customs restrictions (e.g. advance deposit required) and direct government intervention (e.g., national taxes). Scores are converted to a 100-point scale with high scores reflect the most open trade policies.

In my dataset the countries with the least open trade policies are India, Russia and China. The countries with the most open trade policies are Norway, Canada and Croatia.

The labor flexibility component is a quantitative measure of various aspects of the legal and regulatory framework of a country's labor market (Heritage Foundation, 2012). Six quantitative factors are equally weighted to calculate the labor freedom component. They are: ratio of minimum wage to the average value added per worker, hindrance to hiring additional workers, rigidity of hours, difficulty of firing redundant employees, legally mandated notice period, and mandatory severance pay. Scores are converted to a scale ranging from 0 to 100 with higher scores representing greater labor market flexibility.

In my dataset the countries with the least labor market flexibility are Turkey, Argentina and Germany. The countries with the most labor market flexibility are Sweden, Chile and Russia.

Control Variables

In addition to the socio-cultural indicators and moderating regulation variables, I have several control variables that prior research has identified as affecting the level of entrepreneurship. Each control variable is lagged by one year for sufficient casual analysis. First, I control for societies with initiative-taking in jobs. The WVS asked respondents if the opportunity to use initiative was an important aspect of a job. While taking initiative at a job may be very different from the resourcefulness of starting a new firm, societies who value initiative taking in a job should have more individuals who act the same outside of the established business in which they are employed and take the initiative to start a new venture.

Second, I control for how much societies value competition as literature has identified competition an important environmental factor for entrepreneurship to flourish (Lee and Peterson, 2000). This dissertation builds from the theory of culture as defined by Hofstede (1980, 1991, and 2001). Competition is used as a control variable instead of an independent variable because the literature has used it as a control variable and because it falls outside of the spectrum of Hostede's identified cultural variables. The WVS asked respondents if they agree with the statement that competition is good because it stimulates people to work hard and develop new ideas or if they more agree with competition is harmful because it brings out the worst in people. Societies that value competition will work hard to develop new ideas in order to successfully compete.

Third, I control for several macro-economic factors. Specifically, I control for the age structure of the population because it reflects an important demographic characteristic which may influences a country's level of entrepreneurship (e.g. Bowen and Clercq, 2008; Verheul et al., 2002). When there are more people of working age (15-64 years old) then there is a greater likelihood for entrepreneur behavior because there are more people of the age to be an entrepreneur.

Fourth, prior research has identified the relationship between economic activity and level of entrepreneurship (Bowen and Clercq, 2008; Carree et al., 2002). There is a positive relationship between domestic growth and levels of entrepreneurship across countries and time (Carree et al., 2002) because there is greater opportunity when there is growth of national income.

Fifth, the onset of the world financial crisis in 2007-2008 may have impacted levels of entrepreneurship due to opportunity costs affecting both opportunity and necessity entrepreneurs (Reynolds et al., 2002; Sternberg et al., 2006). I control for this macro-economic variable as dummy year 2008 to capture the start of this world economic turmoil. An overview of all data sources, with summary statistics of key variables is shown in Table 3.

Finally, the trustworthiness of government officials is an important country institutional variable related to allocation of entrepreneurial activity. The background institution (Whitley, 1994) is the extent to which public officials use their public power to capture rents for themselves (Choi and Thum, 2005). Extant research has shown that lower levels of trust in public officials are associated with lower productivity or output growth across countries (Sachs and Warner, 1995) and thus entrepreneurs may allocate toward unproductive activities in places where trust in public officials is lacking. Transparency International Corruption Perceptions

Index (CPI), first released in 1995, ranks more than 150 countries by their perceived levels of corruption in public officials, as determined by expert assessments and opinion surveys.

Methods

To analyze the empirical predictions, I construct a country-level longitudinal dataset. In the analysis of productive and unproductive entrepreneurship, I used the country-level as the unit of analysis because this dissertation examines the differences in level and allocation of entrepreneurship. For productive entrepreneurship, the country-level variable is the total number of registered firms in a country in the given year of analysis. For unproductive entrepreneurship, the country-level variable is the total estimated size of the unofficial economy for one measure and then the estimated size of the obstacle that unofficial business create for official business for the other measure. Accordantly, the final panel dataset observes the entrepreneurial activities of countries across time (2004-2008).

I use OLS regression models clustered by country to predict the relationship between the independent variables and moderating variables on the two dependent variables. As a robustness check, I estimate random effects models and fixed effects models. The Hausman test concluded that fixed effects were preferred to random effects models with the Prob>chi2 = 0.9962 for productive entrepreneurship and 1.0000 for unproductive entrepreneurship. The fixed effects models concluded the exact same results or stronger results as the OLS regression models clustered by country. I selected to run OLS regression models for my final analysis because of the small number of observations per country.

The final sample is 25 countries between 2004 and 2008 for both dependent variables – productive and unproductive entrepreneurship. In order to illuminate the effects of developing versus emerging nations and because unproductive entrepreneurship is challenge to measure, I

include an additional measure of unproductive entrepreneurship only developing nations for unproductive entrepreneurship. There is a loss of sample size because this source covers 12 developing countries. The descriptive statistics and correlations of these two datasets are reported in Tables 3 and 4. The correlation between productive entrepreneurship and the unproductive entrepreneurships measure is low at 0.182. The correlation between the two unproductive entrepreneurship measures is in the middle range at 0.539.

CHAPTER 5 – ANALYSES AND RESULTS

In this chapter, I describe and interpret the results of my statistical analyses which test the effect of pro-entrepreneurial socio-cultural values on levels of productive and unproductive entrepreneurship and the moderating effect of rules and regulations on these relationships.

Results

Dependent Variable: Productive Entrepreneurship

Table 5 reports results of the OLS regression models (clustered by country) for the dependent variable: productive entrepreneurship.

Model 1 of Table 5 includes the control variables only. The results shown in Model 2 of Table 5 provide strong support for Hypothesis 1a, which predicted greater levels of pro-entrepreneurial values in a country will lead to greater levels of productive entrepreneurship. For one standard deviation increase in the pro-entrepreneurial socio-cultural index, the amount of productive entrepreneurship in a country would be expected to increase by 125.3%, holding all other variables constant.

Model 3 introduces *Administrative barriers to Entry*. I observe the interaction term is negative and insignificant. Figure 2 provides the marginal effect of pro-entrepreneurial socio-cultural values on productive entrepreneurship as administrative barriers lessen. The solid line of this figure demonstrates the marginal effect of the pro-entrepreneurial socio-cultural values on productive entrepreneurship as the number of procedures to start a business (administrative barriers) decreases from 19 procedures to 2 procedures. The figure confirms the insignificant effect of administrative barriers to entry by graphically showing how the marginal effect of pro-entrepreneurial socio-cultural values on productive entrepreneurship is inconsequential across

the entire range. There is virtually no effect (a straight line). Thus, hypothesis 2a is not supported.

Model 4 introduces *Property rights and contract enforceability*. I observe the interaction term is negative and significant. Figure 3 provides the marginal effect of pro-entrepreneurial socio-cultural values on productive entrepreneurship as property rights become more well-defined. The solid line of this figure demonstrates how the marginal effect of the pro-entrepreneurial socio-cultural values on productive entrepreneurship changes as the property rights and contract enforceability index increases and the 95% confidence interval, the dotted line in the figure, shows the conditions under which the impact of pro-entrepreneurial socio-cultural values on productive entrepreneurship is statistically significant. The graph in Figure 3 confirms that this effect holds for the entire range and shows the marginal effect of pro-entrepreneurial socio-cultural values on productive entrepreneurship *weakens* (the opposite of the predicted direction) as property rights and contract enforceability become more well-defined. Thus, hypothesis 3a is not supported.

Similar negative results are found in Model 5 for *leniency of bankruptcy laws*. I observe the interaction term is negative and significant. Figure 4 provides the marginal effect of pro-entrepreneurial socio-cultural values on productive entrepreneurship as bankruptcy laws become more lenient. The solid line of this figure demonstrates how the marginal effect of the pro-entrepreneurial socio-cultural values on productive entrepreneurship changes as the entrepreneur's recovery rate of a bankrupt firm increases. The 95% confidence interval, the dotted line in the figure, shows the conditions under which the impact of pro-entrepreneurial socio-cultural values on productive entrepreneurship is statistically significant as bankruptcy laws become more lenient for the entrepreneur. The graph in Figure 4 shows a negative and

significant effect holds for the entire range. Thus, the marginal effect of pro-entrepreneurial socio-cultural values on productive entrepreneurship *weakens* (opposite of the predicted direction) as bankruptcy laws become more lenient. Thus, hypothesis 4a is not supported.

Model 6 and Model 7 includes *trade freedom* and *labor flexibility*, respectfully, which show insignificant coefficients for each interaction term and the insignificance is confirmed per graphic illustration across the entire range. Thus H5a and H6a are not supported.

Dependent Variable: Unproductive Entrepreneurship (Schneider et al., 2010)

Table 6 reports the results of the OLS regression models (clustered by country) for the second dependent variable: unproductive entrepreneurship as calculated by Schneider (et al., 2010).

Model 8 includes the control variables only. The results shown in Model 9 of Table 6 provide strong support for Hypothesis 1b at the .067 level, which predicted greater levels of pro-entrepreneurial values in a country will lead to greater levels of unproductive entrepreneurship. For one standard deviation increase in the pro-entrepreneurial socio-cultural index, the amount of unproductive entrepreneurship in a country would be expected to increase by 75%, holding all other variables constant.

Model 10 introduces *Administrative barriers to Entry*. I observe that the independent effect of Administrative barriers to entry and the interaction term are negative and insignificant. This is confirmed via the graph in figure 7. There is no marginal effect of pro-entrepreneurial socio-cultural values on unproductive entrepreneurship. Thus, H2b is not supported.

Model 11-14 includes *Property rights and contract enforceability, bankruptcy laws, trade freedom* and *labor flexibility*, respectfully, which all show insignificant coefficients for

each interaction term and per graphic illustration insignificant across the entire range. Thus, H3b, H4b, H5b, and H6b are not supported.

Dependent Variable: Unproductive Entrepreneurship (Enterprise Survey)

In order to illuminate the effects of developing versus emerging nations, and because unproductive entrepreneurship is extremely challenging to measure, I employ a second test of hypotheses 1b-6b using a second measure per the World Bank Enterprise Survey[3]. Table 7 reports results of the OLS regression models (clustered by country) for the dependent variable: unproductive entrepreneurship by measured by the Enterprise Survey Data.

While the positive effect remains for Model 16 (Hypothesis 1b), there is a loss of statistical significance which may be a consequence of the reduced sample size.

Model 17 introduces *Administrative barriers to Entry*. I observe a negative and significant result for the interaction term. Figure 12 provides the marginal effect of pro-entrepreneurial socio-cultural values on unproductive entrepreneurship as administrative barriers lessen. The solid line of this figure demonstrates the marginal effect of the pro-entrepreneurial socio-cultural values on unproductive entrepreneurship as the number of procedures to start a business (administrative barriers) decreases. The range is from 19 to 2 procedures. The administrative barrier to entry variable is reverse coded so higher scores on the x-axis of Figure 12 represent fewer procedures (e.g. 20 is 2 procedures). The graph in Figure 12 shows that when administrative barriers are high (above 12 procedures) there is a positive effect of pro-entrepreneurial socio cultural values on levels of unproductive entrepreneurship. The graph also shows that when administrative barriers are low (less than 6 procedures) the effect of socio-cultural values on unproductive entrepreneurship flips from positive to negative. Therefore,

[3] The World Enterprise Survey Data includes only developing countries (12 out of the 25 countries in sample)

when administrative barriers are low, an increase in pro-entrepreneurial socio-cultural values will lead to a decrease in levels of unproductive entrepreneurship. This supports Hypothesis 2b.

Model 18 introduces *Property rights and contract enforceability*. I observe the interaction term is negative and significant as predicted. Figure 13 provides the marginal effect of pro-entrepreneurial socio-cultural values on unproductive entrepreneurship as property rights become more well-defined. The solid line of this figure demonstrates how the marginal effect of the pro-entrepreneurial socio-cultural values on productive entrepreneurship changes as the property rights and contract enforceability index increases. The range for property rights and contract enforceability is 20-90 (index). The 95% confidence interval, the dotted line in the figure, shows the conditions under which the impact of pro-entrepreneurial socio-cultural values on productive entrepreneurship is statistically significant as property rights and contract enforceability become more well-defined. The graph in Figure 13 shows as property rights and contract enforceability become more well-defined, an increase in socio-cultural values will lead to a decrease in unproductive entrepreneurship. Thus, Hypothesis 3b is supported.

Model 19 introduces *leniency of bankruptcy laws*. I observe the interaction term is insignificant. Figure 14 provides the marginal effect of pro-entrepreneurial socio-cultural values on unproductive entrepreneurship as bankruptcy laws become more lenient. The graph in Figure 14 shows a negative and insignificant effect holds for the entire range. Thus, Hypothesis 4b is not supported.

Model 20 includes *trade freedom* which shows insignificant negative coefficients for the interaction terms. Figure 15 provides the marginal effect of pro-entrepreneurial socio-cultural values on unproductive entrepreneurship as trade policies become more open. The figure confirms the insignificant effect of trade freedom by graphically illustrated how the marginal

effect of pro-entrepreneurial socio-cultural values on unproductive entrepreneurship is inconsequential across the entire range. There is virtually no effect. Thus, hypothesis 5b is not supported.

Finally, I find negative and significant results for *labor flexibility* for the interaction term in model 21. Figure 16 provides the marginal effect of pro-entrepreneurial socio-cultural values on unproductive entrepreneurship as labor markets become more flexible. The solid line of this figure demonstrates how the marginal effect of the pro-entrepreneurial socio-cultural values on unproductive entrepreneurship changes as the labor market index improves. The 95% confidence interval, the dotted line in the figure, shows the conditions under which the impact of pro-entrepreneurial socio-cultural values on unproductive entrepreneurship is statistically significant as labor markets become more flexible for the entrepreneur. The graph in Figure 16 shows as labor markets become more flexible, an increase in pro-entrepreneurial socio-cultural values will lead to a decrease in unproductive entrepreneurship. Thus, Hypothesis 6b is supported.

Robustness test

For robustness tests, I run the same analysis using fixed-effects models. I select fixed-effects for my robustness test over random effects because of the results of the Hausman test showing a probability of 0.9962 for productive and 1.00 for unproductive concluding that fixed effects is preferred. The fixed effects models yield the same results as the OLS, clustered by country, models. Thus, this confirms the robustness of my models and results. Table 8 and Table 9 show these results.

In sum, in this base interpretation, I find both productive and unproductive entrepreneurship can result from the same pro-entrepreneurial socio-cultural values (H1a, H1b)

and that the impact of rules and regulations on the relationship between pro-entrepreneurial socio-cultural values on levels of productive and unproductive entrepreneurship are mixed.

When administrative barriers to entry are high, there is a positive effect of pro-entrepreneurial socio-cultural values on levels of unproductive entrepreneurship and when administrative barriers are low, an increase in pro-entrepreneurial socio-cultural values will lead to decrease in levels of unproductive entrepreneurship (H2b). Additionally, as property rights and contract enforcement become more well-defined (H3a, H3b) increases in pro-entrepreneurial socio-cultural values result in a decrease in both types of entrepreneurship – productive and unproductive. Also, as bankruptcy laws become more lenient, increases in pro-entrepreneurial socio-cultural values lead to decreases in productive entrepreneurship. Although the results for property right and bankruptcy laws show an opposite of the predicted effect for productive entrepreneurship, they offer promising insights to future research which are discussed in more detail in chapter 6.

No results are found for the level of trade freedom in a country on productive (H5a) or unproductive (H5b) entrepreneurship. This lack of results may be due to data limitations or perhaps trade, although important to the international entrepreneur, may not matter to the average entrepreneur. Finally, as predicted, flexible labor markets (H6b) in a country weaken the relationship between pro-entrepreneurial socio-cultural values and unproductive entrepreneurship as predicted. Hence, as labor markets become more flexible, an increase in pro-entrepreneurial socio-cultural values will lead to a decrease in levels of unproductive entrepreneurship.

Additional Analysis

My original analysis included the entire range for each interaction variables where higher scores represented the least administrative barriers to entry (H2), the most well-defined property rights (H3), the most lenient bankruptcy laws (H4), the most open trade policies (H5) and the most flexible labor markets (H6). In this refined analysis, I divided each of these interaction terms into three sub-categories of low, medium, and high scores to unpack the effect of rules and regulations among these groupings and assess if differences exist across the different categorical levels[4]. To test this, I ran OLS regression models clustered by country including the three categories (low, medium, high) for hypotheses 2-6. The results are shown in table 10, 11 and 12 for dependent variables: productive entrepreneurship, unproductive entrepreneurship (Schneider et al., 2010), and unproductive entrepreneurship (Enterprise Survey), respectfully.

The additional analysis produced very interesting results. First, for the dependent variable productive entrepreneurship the original analysis included the entire range for the interaction variables and showed no support for any of the moderating rules and regulations hypotheses (H2a-H6a). However, the refined analysis shows a consistent pattern of pro-entrepreneurial socio-cultural values leading to less of productive entrepreneurship in low and high ranges of rules and regulations relative to what it produced for productive entrepreneurship in moderate ranges.

Specifically, the original analysis showed property rights (H3a) to be statistically significant in the opposite of the predicted direction (negative). In this additional analysis, property rights (H3a) still yielded negative, significant results but the refined analysis shows an

[4] The three categories (low, medium, high) were selected instead of quadratic equations primarily because the quadratic models with interaction terms were extremely difficult to interpret due to the number of squared terms and different signs in the equation. The categories provide the same analysis as a quadratic equation except does not show if the coefficients differ in a statistically significant way. To correct for this, I conduct an additional test to formally compare coefficients which allows me to make more precise interpretations of the results.

increase in pro-entrepreneurial socio-cultural values will lead to a decrease in productive entrepreneurship in conditions where property rights are not well-defined (low ranges) or too well-defined (high ranges). As shown in model 37 of table 10, the coefficient for the middle range (-0.016) is higher than either the lower range coefficient (-0.023) or the higher range coefficient (-0.036).

This pattern shows an increase in pro-entrepreneurial socio-cultural values will lead to a relative decrease in productive entrepreneurship when property rights are not well-defined (low ranges) or too well-defined (high ranges) relative to what it produces in moderate ranges. This demonstrates that property rights will not push an entrepreneur into productive entrepreneurship but if too vague or too well-defined then property rights will discourage an entrepreneur from being productive.

In this additional analysis, bankruptcy laws (H4a) showed similar results as just described. The refined analysis shows an increase in pro-entrepreneurial socio-cultural values will lead to a decrease in productive entrepreneurship when bankruptcy laws are too strict (low ranges) or too lenient (high ranges) for the entrepreneur. As shown in model 38 of table 10, the coefficient for the middle range (0.028) is higher than either the lower range coefficient (-0.038) or the higher range coefficient (-0.026).

This pattern shows an increase in pro-entrepreneurial socio-cultural values will lead to a decrease in productive entrepreneurship when bankruptcy laws are too strict (low ranges) or too lenient (high ranges) for the entrepreneur relative to what it produces in moderate ranges. When bankruptcy laws are very lenient on the entrepreneur it may be risky for the financial backer because such circumstances make it easy for the entrepreneur to walk away from a failing firm. Accordantly, the financial backer may be less likely to support an entrepreneur and thus there is

less unproductive entrepreneurship. On the other spectrum, when bankruptcy laws become too costly for the entrepreneur in terms of being too strict then the potential financial hardships of a failed firm may deter an entrepreneur from being productive. When bankruptcy laws allow for more shared risk (middle ranges) between financial backer and entrepreneurs then they do not discourage productive entrepreneurship. This demonstrates that bankruptcy laws will not push an entrepreneur into productive entrepreneurship but if too costly for the financial backer and/or the entrepreneur then they will discourage productive behaviors.

Hypotheses 5a and 6a show similar patterns. As shown in model 39 of table 10, the coefficient for the middle range (-0.009) is higher than either the lower range coefficient (-0.012) or the higher range coefficient (-0.008). This pattern suggests that an increase in pro-entrepreneurial socio-cultural values will lead to a decrease in productive entrepreneurship when trade policies are the least open (low ranges) or too open (high ranges) relative to what it produces in moderate ranges.

The same pattern is present for labor market flexibility. As shown in model 40 of table 10, the coefficient for the middle range (0.012) is higher than either the lower range coefficient (0.005) or the higher range coefficient (0.011).This pattern suggests that increase an pro-entrepreneurial socio-cultural values will lead to a decrease in productive entrepreneurship when labor markets are not flexible (low ranges) or too flexible (high ranges) relative to what it produces in moderate ranges.

This consistent pattern of less productive entrepreneurship in low and high ranges of rules and regulations and relatively more productive entrepreneurship in the middle ranges supports that institutions matter when they provide the maximum ability for the productive entrepreneur to capture rents from efforts at the minimal possible cost.

The opposite patterns exist for unproductive entrepreneurship (for both measures). As shown in model 42-45 of table 11 for Schneider (et al., 2010) and model 47-50 of table 12 for the enterprise survey data, the same four rules and regulation variables (property rights, bankruptcy laws, trade freedom and labor market flexibility) which showed the pattern of pro-entrepreneurial socio-cultural values leading to less productive entrepreneurship in high and low ranges of rules and regulations relative to what it produces in moderate ranges, presented the opposite pattern in the analysis of unproductive entrepreneurship. In my refined analysis of unproductive entrepreneurship, I find a consistent pattern of pro-entrepreneurial socio-cultural values leading to more unproductive entrepreneurship in low and high ranges of rules and regulations and those same values leading to relatively less unproductive entrepreneurship in the middle ranges of rules and regulations. These consistent results show the role of rules and regulations in discouraging unproductive entrepreneurship. These stable patterns are primarily intriguing because of the low sample size used in this dissertation and particularly interesting because they hold true for both measures of unproductive entrepreneurship which are from two completely different data sources.

Specifically, in this additional analysis, property rights (H3b) as shown in model 42 of table 11 and model 47 of table 12, show that an increase in pro-entrepreneurial socio-cultural values will lead to an increase in unproductive entrepreneurship when property rights are not well-defined (low ranges) or too well-defined (high ranges) relative to what it produces in moderate ranges. As shown in model 42 (Schneider measure) of table 11, the coefficient for the middle range (-0.049) is lower than either the lower range coefficient (0.039) or the higher range coefficient (0.073). This holds true for the second measure of unproductive entrepreneurship as well. As shown in model 47 (Enterprise measure) of table 12, the coefficient for the middle range

(-0.260) is lower than either the lower range coefficient (-0.118) or the higher range coefficient (-0.087).

The additional analysis of bankruptcy laws (H4b) and unproductive entrepreneurship are shown in model 43 of table 11 and model 48 of table 12, an increase in pro-entrepreneurial socio-cultural values will lead to an increase in unproductive entrepreneurship when bankruptcy laws are strict (low ranges) or too lenient (high ranges) for the entrepreneur relative to what it produces in moderate ranges. As shown in model 43 of table 11, the coefficient for the middle range (-0.319) is lower than either the lower range coefficient (-0.011) or the higher range coefficient (0.023). This holds true for the second measure of unproductive entrepreneurship as well. As shown in model 48 of table 12, the coefficient for the middle range (-0.771) is lower than either the lower range coefficient (0.075) or the higher range coefficient (0.213).

Trade policies show the same consistent patterns in the refined analysis. Model 44 of table 11 and model 49 of table 12, shows an increase in pro-entrepreneurial socio-cultural values will lead to an increase in unproductive entrepreneurship in conditions where trade policies are not open (low ranges) or very open (high ranges) relative to what it produces in moderate ranges. As shown in model 44 of table 11, the coefficient for the middle range (-0.019) is lower than either the lower range coefficient (0.048) or the higher range coefficient (0.055). This holds true for the second measure of unproductive entrepreneurship as well. As shown in model 49 of table 12, the coefficient for the middle range (-0.296) is lower than either the lower range coefficient (-0.108) or the higher range coefficient (-0.048).

Finally, labor market flexibility also shows the same patterns in the refined analysis. Model 45 of table 11 and model 50 of table 12, show an increase in pro-entrepreneurial socio-cultural values will lead to an increase in unproductive entrepreneurship when labor markets are

not flexible (low ranges) or too flexible (high ranges) relative to what it produces in moderate ranges. As shown in model 45 of table 11, the coefficient for the middle range (-0.065) is lower than either the lower range coefficient (0.022) or the higher range coefficient (0.028). This holds true for the second measure of unproductive entrepreneurship as well. As shown in model 50 of table 12, the coefficient for the middle range (-0.555) is lower than either the lower range coefficient (-0.289) or the higher range coefficient (-0.234).

In sum, the additional analysis showed that relative to moderate ranges, extreme low or high ranges of rules and regulations steer the pro-entrepreneurial socio-cultural values away from productive entrepreneurship and toward unproductive entrepreneurship. This supports my second proposition that the closer to optimal the rules and regulations in a country the greater the impact of pro-entrepreneurial socio-cultural values on levels of productive entrepreneurship relative to unproductive entrepreneurship. It further refined proposition two by presenting that the most favorable mix of entrepreneurship actually derives not from the most well-defined property rights, most lenient bankruptcy laws for the entrepreneur, most open trade policies or most flexible labor markets, but rather from moderate levels of those rules and regulations. These results lead me to several conclusions spanning across entrepreneurial theory, government policies and managerial implications for the firm.

CHAPTER 6– DISCUSSIONS AND CONCLUSION

This dissertation investigated why the amount of productive and unproductive entrepreneurship varies across countries. Drawing upon and integrating the socio-cultural literature with rules and regulations literature, I proposed that a country's socio-cultural values and norms determine the likelihood of an individual undertaking entrepreneurial activity of any type, either productive or unproductive, while rules and regulations shift entrepreneurial activity toward productive or unproductive allocations. The proposed hypotheses were tested on total productive and total unproductive entrepreneurship activity in 25 countries during the period 2004-2008.

This dissertation study extends both entrepreneurship and international business literatures, while providing better guidance to managers and policy makers. Additionally, this dissertation provided an empirical testing of Baumol's pivotal piece "Entrepreneurship: Productive, unproductive and destructive," in the *Journal of Political Economy*, (1990) which has been cited over 500 times (Web of Science) but, to my knowledge, empirically tested less than five times. One possible explanation for the lack of empirical exploration concerns the challenge in measuring the numerous variables (Sobel, 2008). Consequently, many researchers sidestep testing unproductive entrepreneurship and test the influence of a country's institutional environment on productive entrepreneurship only (e.g., Aidis et al., 2008; Bjornskov and Foss, 2008). This dissertation contributes to the advances of the few empirical studies on the allocation between productive and unproductive entrepreneurial efforts (Capelleras, et al., 2008; Murphy et al., 1991; Sobel, 2008).

My dissertation revealed that pro-entrepreneurial socio-cultural values drive both productive and unproductive entrepreneurship. In line with previous research, I find that

countries that teach their members to accept an ambiguous world (e.g., McGrath et al., 1992), have egalitarian value systems (e.g., Thompson 1967), support individuality (e.g., Shane, 1993), and have larger volumes of media coverage on entrepreneurship (e.g., Hindle and Klyver, 2007) will have greater levels of entrepreneurship.

Moreover, I put forward that as the rules and regulations under examination in this dissertation become more optimal, in terms of providing the maximum ability for the productive entrepreneur to capture rents from his efforts at the minimal possible cost, the relationship between pro-entrepreneurial socio-cultural values and productive entrepreneurship will strengthen and the relationship between those same values and unproductive entrepreneurship will weaken. The results from this part of the analyses were strongest after my additional refined approach.

The findings on the determinants of the allocation of entrepreneurship show that entrepreneurs do consider the costs they must incur to pursue entrepreneurship and the opportunity to capture rents from their efforts. This supports my second proposition that the closer to optimal the rules and regulations in a country the greater the impact of pro-entrepreneurial socio-cultural values on levels of productive entrepreneurship relative to unproductive entrepreneurship. It further refined my proposition two by showing that the most favorable mix of entrepreneurship actually came not from the most well-defined property rights, most lenient bankruptcy laws for the entrepreneur, most open trade policies or most flexible labor markets, but rather from moderate levels of those rules and regulations. This complements and challenges the existing literature that the quality of the institutional environment in which an entrepreneur resides influences his allocation of entrepreneurial effort (Bowen and De Clercq, 2008) by offering further insight into what is meant by institutional quality.

First, the results show that when administrative barriers are high (above 12 procedures) there is a positive effect of pro-entrepreneurial socio cultural values on levels of unproductive entrepreneurship. However, when administrative barriers are low (less than 6 procedures) the effect of socio-cultural values on unproductive entrepreneurship flips from positive to negative. These findings are consistent with the public choice theory (Peltzman 1976; Stigler 1971; Tullock 1967) that stricter regulation of entry is associated with inferior outcomes and minimal regulation will lead to superior outcomes, e.g., less unproductive entrepreneurship.

Second, in the analysis as property rights and enforcement of contracts became more-well-defined an increase in pro-entrepreneurial socio-cultural values leads to decreases in both types of entrepreneurship – productive and unproductive. However, the additional refined analysis showed that pro-entrepreneurial socio-cultural values lead to relatively less productive entrepreneurship and more unproductive entrepreneurship in low and high ranges of well-defined property rights and those same values lead to relatively more productive entrepreneurship and less unproductive entrepreneurship in the middle ranges of property rights.

This suggests that the protection of property rights and enforcement of contracts have a negative effect on productive entrepreneurship and a positive effect on unproductive entrepreneurship when conditions are so poor that individuals are required to allocate effort away from productive activities in the effort to secure legally unprotected property (DeSoto, 1989). In addition, if property rights become too well-defined then they are costly to enforce and will have an adverse effect on the productive entrepreneur who is running and protecting a registered firm. In line with the existing literature, the extent to which property rights are secure and contracts enforceable determines entrepreneurs' rights to a newly established firm and rights to make exchanges in the market (e.g., Demsetz, 1967). However, if too costly to protect property then

the results may be detrimental to the entrepreneur. Accordingly, entrepreneurs may view well-defined property rights and enforcement of contracts to be costly in the long-term and thus be persuaded away from allocating their efforts toward productive entrepreneurship.

The original analysis on lenient bankruptcy laws showed that as bankruptcy laws become more lenient for the entrepreneur in a country there was a weaker relationship between pro-entrepreneurial socio-cultural values and productive entrepreneurship. This was the opposite of the predicted direction (positive). At first analysis, it appeared that increases in the leniency of bankruptcy laws lead to decreases in the amount of productive entrepreneurship. As an alternative, the additional investigation provided a more in-depth analysis of specifically how bankruptcy laws matter to the entrepreneur. The more nuanced analysis showed that pro-entrepreneurial socio-cultural values lead to relatively less productive entrepreneurship and more unproductive entrepreneurship when bankruptcy laws are in either extreme and lead to relatively more productive entrepreneurship and less unproductive entrepreneurship in the middle ranges. This supports my hypothesis that the marginal effects of increases in socio-cultural pro-entrepreneurial values increase productive entrepreneurship and decreases unproductive entrepreneurship when bankruptcy laws are in moderate ranges.

These results suggest that when investors evaluate the success of a potential venture, they base their decision on the commitment of the entrepreneur. As a result, countries where it is easy abandon a failing firm would provide fewer incentives for the productive entrepreneurs to commit to the long term success of the new venture and thus discourage outside investment because it is more risky for the financial backer. Conversely, bankruptcy laws that favor the financial backer too much will discourage the productive entrepreneur from investing in a new business because the risk of financial debt and hardship should the venture fail may be too costly

of an effort for the productive entrepreneur. A more balanced approach where bankruptcy laws are neither too lenient nor too strict yields the best mix of productive entrepreneurial effort.

Fourth, I hypothesized that the freedom to exchange and experiment, within and across national boundaries, is essential to new combinations of resources in today's globalized world. This led me to the prediction that more entrepreneurial activity would be in places where trade is the least restricted. My original findings did not find support for this prediction which led me to conclude that openness of trade policies is essential to the international entrepreneur but not the average entrepreneur. However, the additional refined analysis showed that pro-entrepreneurial socio-cultural values lead to relatively less productive entrepreneurship and more unproductive entrepreneurship when property rights are in either extreme and lead to relatively more productive entrepreneurship and less unproductive entrepreneurship in the middle ranges. This supports my hypothesis that the marginal effects of increases in socio-cultural pro-entrepreneurial values increase productive entrepreneurship and decreases unproductive entrepreneurship when trade openness is in moderate ranges.

Fifth, I find in my original analysis that as labor markets become more flexible there is a weaker relationship between pro-entrepreneurial socio-cultural values and unproductive entrepreneurship but no relationship between those same values and productive entrepreneurship. However, the refined analysis showed that pro-entrepreneurial socio-cultural values lead to relatively less productive entrepreneurship and more unproductive entrepreneurship when labor market flexibility are in either extreme and lead to relatively more productive entrepreneurship and less unproductive entrepreneurship in the middle ranges. Entrepreneurship requires the ability to effectively and efficiently manage human resources to act in accordance with

unforeseen demand and find the most welcoming environments to be labor markets that are not too flexible or stringent.

Thus, my findings show that the most favorable mix of entrepreneurship derives not from the most well-defined property rights, most lenient bankruptcy laws for the entrepreneur, the most open trade policies nor most flexible labor markets, but rather from moderate levels of those rules and regulations. As previously stated, I made the conjecture, based on previous literature (e.g., Sobel, 2008), that the relationship would be linear and thus increases in rules and regulations would lead to greater outcomes (more productive and less unproductive). However, upon further reflection, I recognize there are several literatures which suggest the effect of rules and regulations on the relationship between pro-entrepreneurial socio-cultural values and entrepreneurship to be non-linear.

For example, the principal agent model puts forward that one wants to minimize the sum of bonding costs, monitoring costs and the residual loss (Jensen and Meckling, 1976) because at a certain point the marginal benefit of monitoring will become less than the marginal cost of monitoring. This logic may be applied to my second hypothesis on administrative barriers of entry as well as my sixth hypothesis on labor market flexibility. For administrative barriers to entry there must be some level of administrative barriers because otherwise new firms are not monitored at all but if too administrative barriers to entry then they become detrimental to the entrepreneur because start-up costs would be too high. In terms of labor market flexibility if labor markets are not regulated then employees may suffer the consequences of an unmonitored employer but if labor markets become too regulated than they reach the point of too costly for the entrepreneur.

Furthermore, the tragedy of the commons literature (Hardin, 2009) puts forward that under-defined property rights will harm the overall society and on the other spectrum the anti-commons literature discusses that over-defined property rights will lead to gridlocks and stifling innovations (Somaya and Teece, 2001; Ziedonis, 2004). Taken together, these literatures suggest a non-linear relationship for property rights and contract enforceability because you need property rights and the enforcement of contracts but if over-defined than it may be too costly to the entrepreneur.

Additionally, the literature on optimal breach of contracts (Barton, 1972 and Rogerson, 1984) relates well to the findings on bankruptcy laws. There are two goals: expectation protection (the plaintiff should be put in as good a position as if the promise had been honored) and the incentive maintenance (the defendant should honor the promises) that guide the contract and determine the penalties if the contract is breached (Barton, 1972). Moreover, there should be a damage measure which provides reasonable assurance that the party will perform to the agreed upon contract (Rogerson, 1984). This logic leads to the prediction that if bankruptcy laws are in either extreme then they become too easy for the entrepreneur (if too lenient) or the lender (if too strict) to breach the contract which should result in less entrepreneurship for extreme levels and more entrepreneurship for moderate levels of bankruptcy laws.

Finally, the theory of second best (Lipsey and Lancaster, 1956) offers additional logic for a non-linear relationship. This theory states that increases in free trade can produce positive or negative results. If there are any other constraints on policies within a country then trade openness may not be beneficial. This logical would lead to a prediction of moderate ranges of trade openness to be the most favorable and to not assume that increases of trade openness always has positive results (more productive entrepreneurship).

The findings of this dissertation offer implications for entrepreneurship and international business theory, policy makers, firm managers as well as opportunities for future research. First this dissertation adds to the entrepreneurship literature by integrating the socio-cultural literature with the rules and regulation literature to allow for variations in amount of entrepreneurs (the supply) as well as variations in the allocations (between productive or unproductive entrepreneurship). Separately each of these literatures provides only partial explanations for why levels of entrepreneurship vary across countries. Taken together researchers are better able to predict and explain the variation of the amount and allocation of entrepreneurship thus adding to our theoretical understanding of determinants of entrepreneurship.

Second, while Baumol's (1990) work continues to provide the motivation for many entrepreneurship papers, his analysis did not offer researchers with a specific list of the key indicators that influence the allocation of entrepreneurial efforts (Bowen and Clercq, 2008). This omission has theoretical and empirical implications which are covered in this dissertation. Theoretically, I identified key indicators that match Baumol's (1990) propositions in public interest theory, public choice theory, property rights, bankruptcy, international trade and labor market theories. The combination of these factors allowed for a better prediction and explanation in the variations of levels and allocation of entrepreneurship across countries.

Empirically, operationalizing measures to capture these factors improved the empirical domain of the current literature. One of the reasons for the lack of empirical studies is that all three variables are essentially unobservable (Sobel, 2008). I operationalized productive entrepreneurship, unproductive entrepreneurship, and five rules and regulations variables which allowed for a more complete empirical test.

One of the perplexing outcomes of the results was the original lack of effects for the rules and regulations hypotheses on productive entrepreneurship. At the first analysis, four out of the five institutional factors showed no effect on the relationship between pro-entrepreneurial socio-cultural values and productive entrepreneurship. This led to an early conclusion that future research should investigate where the productive entrepreneurial effort is going if not to more productive entrepreneurship. However, the refined analysis suggests that when regulations are at either extreme (high or low) then we observe pro-entrepreneurial socio-cultural values to lead to less productive entrepreneurship and more unproductive entrepreneurship and when in the middle ranges to lead to relatively more productive entrepreneurship and less unproductive entrepreneurship. This conclusion highlights the importance of improving rules and regulations but it does not answer the question of where the productive entrepreneurial effort is ending up, if not in starting a new firm (productive entrepreneurship).

One possible explanation is entrepreneurial people are working for productive entrepreneurs. In other words, the allocation of entrepreneurial efforts may not be fully captured by using the number of new business owners as the proxy for productive entrepreneurship. Additional empirical examinations should look beyond new business owner inception rates and investigate characteristics within the firm. The individuals working in a new firm may be just as productively entrepreneurially as their bosses but not involved in the official registration of the firm or have the title of new business owner (e.g., joined the firm shortly after its inception). This is an important distinction that offers promising avenues for future research to looking within the firm for different types of productive entrepreneurship.

Third, this dissertation highlights the significance of the comparative approach to entrepreneurship. The findings show support for the importance of looking at entrepreneurship at

the country-level and taking into account both the socio-cultural values and the regulatory environment of a country to understand why there is variation in entrepreneurship around the globe. Precisely looking beyond just better institutions and unpacking specifically what types matter to productive entrepreneurship. This dissertation put forward rules and regulations that provide the maximum ability for the productive entrepreneur to capture rents from his efforts at the minimal possible cost would yield the best results (more productive entrepreneurship relative to unproductive entrepreneurship). The refined analysis showed that the maximum ability to capture rents for efforts with minimal costs is found in the middle ranges, as opposed to either extreme, of institutional regulations.

Integrating international business and entrepreneurship theory, as done in this dissertation, broadens our understanding of entrepreneurship beyond the individual or firm to levels which have implications for economic growth. Comparative approaches are the foundation of international business theory and on the other hand less prevalent in entrepreneurship theory. One exception is the international entrepreneurship literature but its focuses are on the internationalization of small and medium size enterprises (SMEs). Accordingly, this dissertation offers a new lens to which international business and entrepreneurship can be combined.

As well as contributing to the academic literature, this paper gives value to practitioners by guiding policy makers and firm managers. Indeed, my results indicate that policies matter. There is a clear pattern that extreme ranges of rules and regulations yield bad results (less productive and more unproductive entrepreneurship) whereas middle ranges have the best results (more productive and less unproductive entrepreneurship). Rules and regulations in the middle ranges in a country strengthen the relationship between pro-entrepreneurial socio-cultural values

and levels of productive entrepreneurship and weaken the relationship between those same values and unproductive entrepreneurship.

The findings of this dissertation extend classic entrepreneurship (new firm creation) into corporate entrepreneurship as well as intrapreneurship and thus provide several managerial implications. First, a primary strategic question that managers face today is where to locate their R&D facilities. In a globalized world, firms are scanning for locations that not only cut costs but provide high quality human capital. When a manager faces the challenges on where to locate he must consider both the pro-entrepreneurial socio-cultural values, to ensure an entrepreneurial culture, as well as the costs and benefits of doing business in a country as determined by rules and regulations. This study suggests that the more appealing places to locate an R&D facility are in countries with the combination of pro-entrepreneurial socio-cultural values and middle ranges of rule and regulation.

The conclusions of this dissertation further extend to recent international business literature on the headquarters-subsidiary relationship. Globalization created a world where previously unattainable economies of scale became more assessable (Birkinshaw, 1995) and taking advantage of these opportunities required a fundamental change in the way top management viewed the role of their foreign subsidiaries. The multinational subsidiary in current research is now conceptualized as a "semi-autonomous entity with entrepreneurial potential" (Birkinshaw et al., 2005 pg.229). Entrepreneurial potential is defined as the extent to which a subsidiary may engage in entrepreneurial behavior. Thus managers seek to try and predict how MNCs can better tap into their foreign subsidiaries entrepreneurial possibilities. Adding to this research, the location of the subsidiary will greatly influence the extent to which

the firm will be entrepreneurial because it is embedded in the socio-cultural values and norms of its society.

Furthermore, some companies pride themselves in having an entrepreneurial organizational culture and thus seek to invest in highly motivated and innovative employees to match. For example, Google strives "to maintain the open culture often associated with startups, in which everyone is a hands-on contributor and feels comfortable sharing ideas and opinions" (google.com). Google is well known for permitting employees to spend up to 20% of their workweek on projects not related to the other 80% of their normal responsibilities. Last year, Apple followed suit by introducing the "Blue Sky" initiative that gave a small group of employees a few weeks 'off' to develop their own engineering projects (Wall Street Journal). Applying these ideas to the global economy it is clear that the best employees for Google, Apple and other innovative firms are located in places that are considered to have pro-entrepreneurial socio-cultural values and the rules and regulations of these countries will determine if that effort is allocated productively.

The findings of this dissertation offer many possible extensions for future research. First, this dissertation examined the productive and unproductive allocation of entrepreneurial efforts across 25 countries using data from a variety of sources. An empirical analysis of this size in terms of the number of countries investigated and measurement has not yet, to my knowledge, been done. It would be further appealing to examine specific within country factors as possible determinants of the allocation of entrepreneurial effort. One way to accomplish this is to conduct in-depth interviews with local managers regarding the types of entrepreneurial activity within their country.

Second, there are limitations to measuring entrepreneurship. This dissertation used the

dataset from GEM to measure productive entrepreneurship which is consistent with technical standards in social science research (GEM, 2008) but has limitations. First ideally GEM would have larger sample sizes and longer interview times with participants to allow for a more detailed precision of sample (Reynolds et al., 2005). While limited, GEM is currently the world's leader and most comprehensive data of productive entrepreneurship and continues to improve in scope and precision.

Third, there were several variables that theory suggested would be important determinants in the allocation of entrepreneurial effort but data availability were lacking. One primary example is capital markets. Entrepreneurs are individuals who not only identify an opportunity worth pursuing but act on it (McMullen and Sheperd, 2006). Since financing constraints may act as hindrance for a potential entrepreneur to act, access to capital may influence the entrepreneur's decision to engage in entrepreneurship of any kind. If future studies can identify data sources that offer comparative analysis of capital markets then this would be an improvement to this current study.

Likewise, this dissertation examines the conditions for an entrepreneur to get started and the costs and benefits of becoming a productive or unproductive entrepreneur. One of those benefits, not included in this dissertation is opportunity for firm growth. An entrepreneur will be more likely to be productive when there are lower barriers to growth in terms of recouping the capital investment (Eesley, working paper 2012). If future studies can identify comparative data sources to capture potential for future firm growth then this would be an additional improvement.

Fourth, future research may want to examine entrepreneurs beyond inception and investigate survival rates. Namely, recent literature has shown that entrepreneurs driven by opportunity will experience longer firm survival rates than those driven by necessity (e.g.,

Reynolds et al., 2005). Nonetheless, future research should be cautious of how necessity entrepreneurship is defined. In GEM's database necessity entrepreneurship is defined as individuals having no other means than entrepreneurship for making a living which implicitly assumes productive entrepreneurship to be the only option. As described in this dissertation, researchers should also take into consider that unproductive entrepreneurship, not included in the GEM database, is also an option for the potential entrepreneur.

Fifth, one of the challenges of country-level comparative studies is bringing the unit of analysis down to the firm; particularly the importance of these concepts to managers. One valuable extension of this research is to apply and test these same ideas within the boundaries of the firm. An in-depth analysis of an entrepreneurial firm that changes its way of operating (rules and regulations) would be a good test to see if the ideas are generalizable to the firm. A thought-provoking question is if a pro-entrepreneurial firm (e.g. Google) would see different types of entrepreneurial behavior (productive vs. unproductive) after shifts in company rules. Unproductive entrepreneurial behavior within a firm may be defined as counterproductive behavior (e.g. time wasting).

Another avenue for firm-level research related to the findings of this dissertation is in human resource management by examining how employees judge fairness in company policies and the resulting productive or unproductive behaviors in response to the perception of fairness. Company-level policies may influence individual employees' actions just as country-level policies influence individual entrepreneur actions in a manner that corresponds with not favoring the firm or the employee to an extreme.

Finally, the findings of this dissertation call for future research in two emerging research streams. First, despite decades of research, a justification for why rates of entrepreneurial activity

differ across countries is still underexplored (Hechavarria & Reynolds, 2009; Wennekers et al., 2005). There is a need for studies that employ country-level framework conditions and culture on explaining entrepreneurial activity (Stenholm et al., 2013). This dissertation fills part of this gap in the literature.

Second, the field of management has recently shown renewed interest in the informal economy as an important research avenue for extending our understanding of the firm's competitive advantages, capabilities, resources, innovative profiles, and nature of managerial function and resource-allocation process and the function of the corporation as a social mechanism for value creation (McGahan, 2012). This dissertation contributes to this interest in providing important insights for mainstream theories that have previously been limited to the registered (official) firm.

The main contribution of this dissertation was the integration of the socio-cultural literature with the rules and regulations literature to better explain why there are varying amounts of productive and unproductive entrepreneurship around the globe. First, four socio-cultural values were identified and combined into an index to test if more pro-entrepreneurial values lead to overall levels of entrepreneurship. The results showed that both productive and unproductive entrepreneurship result from the same pro-entrepreneurial socio-cultural values. Doing so extended the socio-cultural literature into the allocation of entrepreneurship literature.

Three additional inter-related contributions were made. Building off of Baumol's (1990) broad reference to rules and regulations a specific set of institutional factors that steer the allocation of entrepreneurial resources were established. The refined analysis shows that pro-entrepreneurial socio-cultural values lead to relatively less productive entrepreneurship and more unproductive entrepreneurship in low and high ranges of rules and regulations and those same

values lead to relatively more productive entrepreneurship and less unproductive entrepreneurship in the middle ranges of rules and regulations. My findings show that the most favorable mix of entrepreneurship actually derives not from the most well-defined property rights, most lenient bankruptcy laws for the entrepreneur, the most open trade policies nor most flexible labor markets, but rather from moderate levels of those rules and regulations.

Figures, Tables and Graphs

Figure 1: Dissertation Model

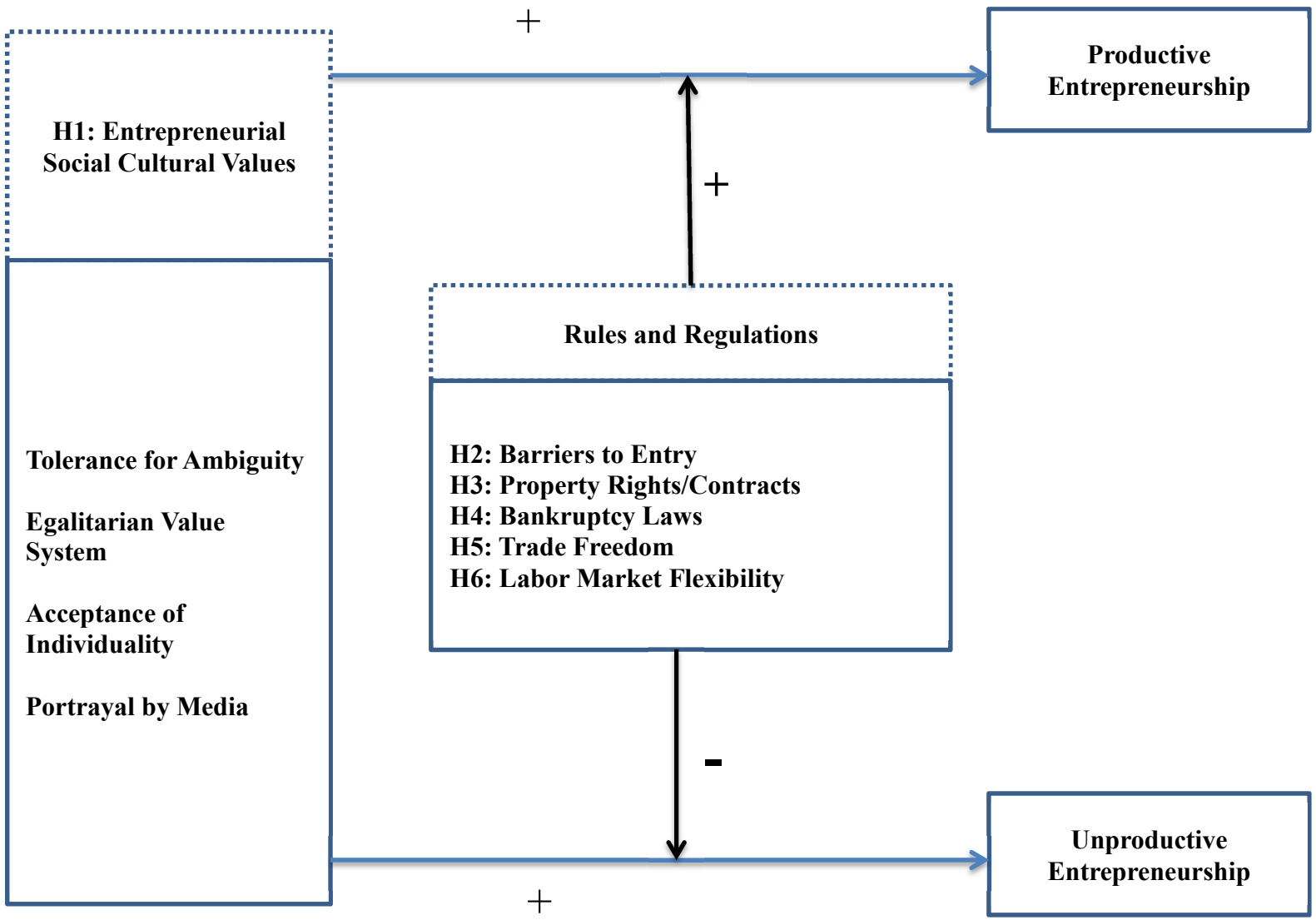


Table 1 - Code plan of the empirical part of Dissertation Overview

Topic	Variable Type	Corresponding Hypotheses	Number of Countries	Years	Source
Productive Entrepreneurship	Dependent Variable	All (a)	25	2004-2008	GEM
Unproductive Entrepreneurship	Dependent Variable	All (b)	25	2004-2008	World Bank from Schneider, F., Buehn, A & M, Claudio E.(2010).IEJ
Unproductive Entrepreneurship	Dependent Variable	All (b)	12	one year within 2007-2009	World Bank Enterprise Survey
Socio-cultural Values - Tolerance for Ambiguity	Independent Variable	H1(a)	25	1998	World Value Survey
Socio-cultural Values- Egalitarian Value Systems	Independent Variable	H1(b)	25	1998	World Value Survey
Socio-cultural Values - Acceptance of Individuality	Independent Variable	H1(c)	25	1998	World Value Survey
Socio-cultural Values - Portrayal of Entrepreneurship by Media	Independent Variable	H1(d)	25	2004-2008 (lagged by 1yr)	GEM
Rules and Regulations- Red Tape	Moderating Variable	H2	24 (missing Sweden)	2004-2008	WDI- Doing Business Project
Rules and Regulations- Property Rights and Contracts	Moderating Variable	H3	25	2004-2008	Heritage Foundation
Rules and Regulations- Leniency of Bankruptcy Laws	Moderating Variable	H4	25	2004-2008	Calculated from World Bank Data
Rules and Regulations - Trade	Moderating Variable	H5	25	2004-2008	Heritage Foundation
Rules and Regulations - Labor Markets Flexibility	Moderating Variable	H6	25	2004-2008	Heritage Foundation

Table 2 - Code plan of the empirical part of Dissertation Question and Coding

Topic	Question Asked	Coding
Productive Entrepreneurship	Do you Own/manage a running business that has paid wages (new business) or no paid wages yet (nascent) for more than three months, but not more than 42 months	Percentage of those that qualified as either new business owner or nascent business owner
Unproductive Entrepreneurship	n/a SEM equation	Shadow economy as percentage of GDP
Unproductive Entrepreneurship	Is the informal economy a major obstacle?	Percentage of yes (1) answers
Tolerance for Ambiguity	Now I'd like you to tell me your views on various issues. How would you place your views on this scale? 1 means you agree completely with the statement on the left; 10 means you agree completely with the statement on the right; and if your views fall somewhere in between, you can choose any number in between. Sentences: Ideas stood test of time better vs. New ideas better	(1) Ideas that stood test of time are generally best to (10) New ideas are generally better than old on
Egalitarian Value Systems	Some people feel they have completely free choice and control over their lives, while other people feel that what they do has no real effect on what happens to them. Please use this scale where 1 means "none at all" and 10 means "a great deal" to indicate how much freedom of choice and control you feel you have over the way your life turns out	Scale ranging from (1) none at all to (10) a great deal
Acceptance of Individuality	Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Autonomy Index = (Religion/Faith + Obedience) – (Independence + Determination/Perseverance)	Scores range (-2) to (+2) depending on selected qualities; reverse coded to reflect High Autonomy
Media-Entrepreneurship	In your country, you often see stories in the public media bout successful new businesses	Percentage of population that said yes
Red Tape	Reverse code of: Number of procedures required to start a firm	Reverse code of number of procedures to reflect high as lowest amount of procedures
Property Rights/Contracts	Property Rights component index	Scores range from 0 to 100.
Ease of Failing	100 cents - rate of recovery as cents per dollar by others (creditors, tax officials, employees)= Fresh start rate	0-100 cents, Calculated
Trade	The minimum tariff is zero percent the maximum is 50%.; Scores are converted to 100-point scale	Scores range from 0 to 100.
Labor Markets	Six quantitative factors are equally weighted: Ratio of minimum wage to the average value added per worker, Hindrance to hiring additional workers, Rigidity of hours, Difficulty of firing redundant employees, Legally mandated notice period, and Mandatory severance pay.	Scores range 0 to 100; in constructing the labor freedom score, each of the six factors is converted to a scale of 0 to 100

Table 3

Variable	Type	Hypotheses	Countries	Years	Mean	Std. dev.	Min	Max	Source
Productive Entrepreneurship	Dependent	All	25	2004-2008	8.82	5.16	1.48	31.64	GEM
Unproductive Entrepreneurship	Dependent	All	25	2004-2008	24.24	11.22	8.8	56	World Bank from Schneider et al., 2010
Unproductive Entrepreneurship	Dependent	All	12	2007, 2008 or 2009	33.34	10.18	17.29	51.87	World Bank Enterprise Survey
Socio-cultural Values Aggregate Measure	Independent	H1	25	1998	-0.08	2.57	-6.27	7.76	World Value Survey & GEM
Admin Barriers to Entry	Moderating	H2	24	2004-2008	12.32	4.42	2	19	WDI- Doing Business Project
Property Rights and Contracts	Moderating	H3	25	2004-2008	62.65	23.58	20	90	Heritage Foundation
Bankruptcy Laws	Moderating	H4	25	2004-2008	50.97	28.93	5.59	99.9	Calculated from World Bank Data
Trade Freedom	Moderating	H5	25	2004-2008	74.82	12.02	23.6	89.2	Heritage Foundation
Labor Market Flexibility	Moderating	H6	25	2004-2008	64.75	15.99	38.8	97.8	Heritage Foundation
Job Initiative Taking	Control	All	25	2004-2008	0.47	0.12	0.22	0.83	World Value Survey
Competition is Good	Control	All	25	2004-2008	7.39	0.57	6.28	8.53	World Value Survey
Population: Working Age	Control	All	25	2004-2008	52.61	11.12	39.29	105.7	WDI
Government Corruption	Control	All	25	2004-2008	4.22	2.42	0.3	7.9	Transparency International (TI)
GNI growth (annual %)	Control	All	25	2004-2008	4.91	3.07	-4	13.27	WDI
Year 2008	Control	All	25	2004-2008	0.2	0.4	0	1	Dummy

Table 4

Correlation Table

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Productive Entrepreneurship	1.000												
2. Unproductive Entrepreneurship	0.182	1.000											
3. Unproductive Entrepreneurship (es)[5]	0.583	0.539	1.000										
4. Pro-Entrepreneurial Values (H1)	0.722	0.264	0.647	1.000									
5. Admin Barriers to Entry	-0.379	-0.569	-0.498	-0.266	1.000								
6. Property Rights and Contract	-0.228	-0.584	-0.037	-0.078	0.691	1.000							
7. Bankruptcy Laws	0.193	0.575	-0.047	0.182	-0.578	-0.586	1.000						
8. Trade Freedom	-0.213	-0.260	-0.281	-0.195	0.513	0.560	-0.504	1.000					
9. Labor Flexibility	0.178	-0.204	0.217	0.006	0.119	0.309	-0.173	0.062	1.000				
10. Initiative Taking is Important	-0.058	-0.310	0.095	0.092	0.256	0.325	-0.126	0.211	-0.056	1.000			
11. Competition is Important	0.161	-0.031	-0.340	0.185	-0.048	-0.280	0.266	-0.318	-0.019	-0.054	1.000		
12. GNI growth (annual %)	0.273	0.185	0.047	0.165	-0.350	-0.622	0.468	-0.475	-0.242	-0.113	0.328	1.000	
13. Population: Working Age	0.484	0.409	0.322	0.388	-0.450	-0.230	0.163	-0.171	0.183	0.069	0.294	0.132	1.000
14. Government Corruption	0.249	0.622	-0.004	0.112	-0.724	-0.929	0.724	-0.616	-0.261	-0.309	0.291	0.592	0.265

[5] Enterprise Survey Data measure (12 Developing Countries)

Table 5: OLS Estimates on Productive Entrepreneurship

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Pro-Entrepreneurial Values (H1)		1.253***	1.314	2.296***	2.404***	2.335	1.223
		(5.57)	(1.44)	(4.70)	(6.40)	(1.50)	(0.85)
Admin Barriers to Entry*Values (H2)			-0.005				
			(-0.07)				
Property Rights*Values (H3)				-0.018*			
				(-2.10)			
Bankruptcy Laws*Values (H4)					-0.028**		
					(-3.49)		
Trade Freedom*Values (H5)						-0.014	
						(-0.69)	
Labor Flexibility*Values (H6)							0.001
							(0.02)
Admin Barriers to Entry	-0.498*	-0.138	-0.134	-0.016	-0.701**	-0.092	-0.139
	(-2.51)	(-0.62)	(-0.63)	(-0.08)	(-2.92)	(-0.39)	(-0.68)
Property Rights and Contracts	-0.092	-0.104	-0.105	-0.107	-0.119	-0.109	-0.104
	(-0.79)	(-1.74)	(-1.80)	(-2.00)	(-2.05)	(-1.89)	(-1.68)
Bankruptcy Laws	0.002	0.008	0.008	0.0238	0.003	0.011	0.008
	(0.05)	(0.38)	(0.37)	(1.04)	(0.14)	(0.52)	(0.33)
Trade Freedom	0.039	0.031	0.030	-0.008	0.053	-0.010	0.031
	(0.67)	(0.57)	(0.52)	(-0.15)	(1.01)	(-0.08)	(0.59)
Labor Flexibility	0.110	0.100**	0.090**	0.092**	0.137***	0.096**	0.099**
	(1.87)	(3.70)	(3.67)	(3.19)	(4.81)	(3.39)	(3.05)
Initiative Taking in a Job is Important	-3.647	-0.998	-0.877	1.178	2.308	-0.882	-1.017
	(-0.42)	(-0.22)	(-0.18)	(0.31)	(0.56)	(-0.21)	(-0.23)
Competition is Important	1.187	0.0514	0.042	-0.221	0.017	-0.109	0.049
	(0.82)	(0.07)	(0.06)	(-0.28)	(0.02)	(-0.14)	(0.06)
GNI growth (annual %)	0.293	0.084	0.084	0.081	0.076	0.074	0.085
	(1.11)	(0.48)	(0.47)	(0.47)	(0.54)	(0.41)	(0.47)
Year 2008	1.312	1.741**	1.735**	1.891**	1.646*	1.904**	1.741**
	(1.98)	(3.11)	(3.27)	(3.37)	(2.80)	(3.00)	(3.10)
Population: Working Age	0.228	-0.078	-0.080	-0.182	-0.010	-0.122	-0.077
	(1.15)	(-0.56)	(-0.55)	(-1.19)	(-0.08)	(-0.73)	(-0.47)
Government Corruption	-1.114	-0.753	-0.767	-0.875	-1.426	-0.863	-0.753
	(-1.19)	(-0.99)	(-0.96)	(-1.23)	(-1.94)	(-1.17)	(-0.98)
Constant	-4.624	14.65	14.89	22.54	17.14	20.94	14.62
	(-0.24)	(1.22)	(1.19)	(1.92)	(1.37)	(1.40)	(1.22)
Number of Observations	67	67	67	67	67	67	67
R-squared	0.3357	0.7078	0.7078	0.7311	0.7636	0.7124	0.7078
Prob > F	0.0074	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001

t statistics in parentheses
="* p<0.05

Table 6: OLS Estimates on Unproductive Entrepreneurship (Schneider)

	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14
Pro-Entrepreneurial Values (H1)		0.750†	3.397†	-0.567	1.038	-1.778	-2.599
		(1.92)	(1.77)	(-0.51)	(0.62)	(-0.35)	(-0.87)
Admin Barriers to Entry*Values (H2)			-0.232				
			(-1.44)				
Property Rights*Values (H3)				0.0220			
				(1.17)			
Bankruptcy Laws*Values (H4)					-0.007		
					(-0.16)		
Trade Freedom*Values (H5)						0.033	
						(0.51)	
Labor Flexibility*Values (H6)							0.050
							(1.20)
Admin Barriers to Entry	0.986	0.853	1.041**	0.673	0.721	0.777	0.743
	(1.54)	(1.59)	(2.82)	(1.30)	(1.10)	(1.62)	(1.39)
Property Rights and Contracts	-0.208	-0.158	-0.208*	-0.142	-0.163	-0.152	-0.166
	(-1.95)	(-1.86)	(-2.53)	(-1.66)	(-1.48)	(-1.92)	(-1.87)
Bankruptcy Laws	0.184*	0.134	0.119	0.116	0.134	0.131	0.112
	(2.16)	(1.72)	(1.56)	(1.61)	(1.73)	(1.70)	(1.42)
Trade Freedom	0.057	0.089	0.061	0.095	0.087	0.107	0.042
	(0.94)	(0.79)	(0.54)	(0.88)	(0.77)	(1.01)	(0.39)
Labor Flexibility	-0.0973	-0.130*	-0.126**	-0.132*	-0.121	-0.130*	-0.117*
	(-1.59)	(-2.71)	(-2.80)	(-2.76)	(-1.44)	(-2.66)	(-2.44)
Initiative Taking in a Job is Important	-20.12*	-17.66**	-10.98	-19.74**	-17.12**	-17.40**	-19.06**
	(-2.67)	(-3.33)	(-1.45)	(-2.92)	(-3.05)	(-3.58)	(-3.41)
Competition is Important	-7.545	-4.433	-4.761	-4.247	-4.526	-4.441	-5.336
	(-1.86)	(-1.26)	(-1.44)	(-1.19)	(-1.16)	(-1.24)	(-1.33)
GNI growth (annual %)	-0.577	-1.006*	-1.086*	-0.949*	-1.012*	-0.978*	-0.886
	(-1.14)	(-2.26)	(-2.65)	(-2.13)	(-2.25)	(-2.10)	(-1.83)
Population: Working Age	0.496**	0.331*	0.256	0.376*	0.344	0.340*	0.323
	(3.20)	(2.17)	(1.57)	(2.38)	(1.52)	(2.08)	(1.97)
Government Corruption	0.417	1.236	0.850	1.282	1.055	1.307	1.106
	(0.33)	(1.34)	(0.96)	(1.41)	(0.58)	(1.50)	(1.18)
Constant	58.01	41.21	48.91*	39.87	43.24	39.70	54.41
	(2.04)	(1.76)	(2.11)	(1.74)	(1.40)	(1.85)	(1.90)
Number of Observations	58	58	58	58	58	58	58
R-squared	0.3357	0.6957	0.723	0.7043	0.6965	0.6987	0.7096
Prob > F	0.0074	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

t statistics in parentheses
="* p<0.05

Table 7: OLS Estimates on Unproductive Entrepreneurship (Enterprise)

	Model 15	Model 16	Model 17	Model 18	Model 19	Model 20	Model 21
Pro-Entrepreneurial Values (H1)		0.106	8.765**	6.631***	4.058	6.480	16.47**
		(0.09)	(3.29)	(4.88)	(1.24)	(2.00)	(3.63)
Admin Barriers to Entry*Values (H2)			-0.803*				
			(-2.65)				
Property Rights*Values (H3)				-0.141**			
				(-3.68)			
Bankruptcy Laws*Values (H4)					-0.075		
					(-1.21)		
Trade Freedom*Values (H5)						-0.090	
						(-1.85)	
Labor Flexibility*Values (H6)							-0.247**
							(-3.25)
Admin Barriers to Entry	-1.419	-2.133	-1.112	-1.674**	-3.175	-1.772	-0.874
	(-2.06)	(-1.76)	(-1.88)	(-4.09)	(-2.14)	(-1.70)	(-1.03)
Property Rights and Contracts	-0.166	0.0947	-0.420	-0.609	0.270	-0.167	-0.482
	(-0.52)	(0.29)	(-1.20)	(-1.83)	(0.92)	(-0.49)	(-1.38)
Bankruptcy Laws	-0.114	-0.307	-0.290	-0.056	-0.225	-0.228	-0.068
	(-1.00)	(-1.30)	(-2.02)	(-0.79)	(-1.02)	(-1.15)	(-0.42)
Trade Freedom	-0.0039	0.147	-0.0746	-0.163	0.256	-0.119	-0.174
	(-0.02)	(1.02)	(-0.77)	(-1.70)	(1.39)	(-0.69)	(-1.48)
Labor Flexibility	0.174	0.314	0.270	0.973**	0.371	0.544	0.848*
	(0.72)	(1.22)	(1.62)	(3.15)	(1.53)	(1.51)	(2.28)
Initiative Taking in a Job is Important	16.85	25.26	42.28	73.07**	32.53	34.43	57.75
	(0.97)	(1.04)	(2.13)	(3.28)	(1.41)	(1.24)	(1.94)
Competition is Important	-6.826	-1.887	-10.77*	-7.236*	-0.338	-4.152	2.397
	(-1.19)	(-0.38)	(-2.76)	(-2.96)	(-0.06)	(-0.80)	(0.47)
GNI growth (annual %)	0.540	0.936	0.132	0.342	1.178*	0.741	-0.079
	(1.09)	(2.02)	(0.34)	(1.43)	(2.28)	(1.67)	(-0.17)
Population: Working Age	-0.039	-0.153	-0.140	-0.723*	-0.122	-0.260	-0.175
	(-0.16)	(-0.91)	(-1.29)	(-2.91)	(-0.66)	(-1.33)	(-1.13)
Government Corruption	-1.646	1.460	-3.948	-3.274	2.511	-0.199	-3.686
	(-0.40)	(0.31)	(-1.02)	(-1.16)	(0.60)	(-0.05)	(-1.00)
Constant	106.0	38.97	157.7*	112.6*	1.001	76.40	21.18
	(2.06)	(0.74)	(2.58)	(3.10)	(0.02)	(1.62)	(0.47)
Number of Observations	33	33	33	33	33	33	33
R-squared	0.5463	0.6976	0.8633	0.9133	0.7213	0.7363	0.8031

t statistics in parentheses
="* p<0.05

Table 8: Robustness Test: Fixed Effects Estimates on Productive Entrepreneurship

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Pro-Entrepreneurial Values (H1)		1.252***	1.218*	2.327***	2.370***	2.547*	1.178
		(8.38)	(2.05)	(4.60)	(6.70)	(2.16)	(0.86)
Admin Barriers to Entry*Values (H2)			0.00292				
			(0.06)				
Property Rights*Values (H3)				-0.0186*			
				(-2.22)			
Bankruptcy Laws*Values (H4)					-0.0272**		
					(-3.43)		
Trade Freedom*Values (H5)						-0.0171	
						(-1.11)	
Labor Flexibility*Values (H6)							0.00103
							(0.05)
Admin Barriers to Entry	-0.492*	-0.147	-0.149	-0.0213	-0.694**	-0.0926	-0.151
	(-2.50)	(-0.96)	(-0.93)	(-0.13)	(-3.27)	(-0.57)	(-0.89)
Property Rights and Contracts	-0.0952	-0.107*	-0.107	-0.112*	-0.121*	-0.114*	-0.107*
	(-1.37)	(-2.07)	(-2.00)	(-2.25)	(-2.56)	(-2.19)	(-2.05)
Bankruptcy Laws	0.00308	0.00955	0.00967	0.0270	0.00469	0.0138	0.00894
	(0.11)	(0.43)	(0.43)	(1.19)	(0.23)	(0.62)	(0.36)
Trade Freedom	0.0297	0.0106	0.0111	-0.0332	0.0359	-0.0356	0.0110
	(0.48)	(0.20)	(0.20)	(-0.60)	(0.73)	(-0.52)	(0.20)
Labor Flexibility	0.111**	0.0983***	0.0982***	0.0915***	0.136***	0.0941***	0.0989***
	(3.14)	(4.09)	(4.04)	(3.91)	(5.55)	(3.87)	(3.65)
Initiative Taking in a Job is Important	-3.510	-0.983	-1.049	1.240	2.232	-0.849	-1.028
	(-0.81)	(-0.30)	(-0.30)	(0.38)	(0.72)	(-0.26)	(-0.30)
Competition is Important	1.190	0.170	0.176	-0.104	0.118	-0.0116	0.163
	(1.21)	(0.23)	(0.23)	(-0.14)	(0.17)	(-0.02)	(0.21)
GNI growth (annual %)	0.276	0.0458	0.0457	0.0390	0.0445	0.0309	0.0481
	(1.19)	(0.27)	(0.27)	(0.24)	(0.29)	(0.18)	(0.27)
Population: Working Age	0.226*	-0.0854	-0.0847	-0.192	-0.0174	-0.138	-0.0819
	(2.08)	(-0.96)	(-0.93)	(-1.95)	(-0.21)	(-1.37)	(-0.74)
Government Corruption	-1.162	-0.896	-0.889	-1.059	-1.521*	-1.048	-0.896
	(-1.47)	(-1.39)	(-1.34)	(-1.69)	(-2.47)	(-1.59)	(-1.38)
Constant	-3.377	17.19	17.07	25.82*	19.18	25.03	17.09
	(-0.24)	(1.55)	(1.50)	(2.27)	(1.90)	(1.91)	(1.51)
Number of Observations	67	67	67	67	67	67	67

t statistics in parentheses
="* p<0.05

Table 9: Robustness Test: Fixed Effects Estimates on Unproductive Entrepreneurship (Schneider)

	Model 29	Model 30	Model 31	Model 32	Model 33	Model 34	Model 35
Pro-Entrepreneurial Values (H1)		0.742*	3.380*	-0.617	1.018	-1.559	-2.730
		(2.11)	(2.54)	(-0.50)	(1.09)	(-0.40)	(-1.15)
Admin Barriers to Entry*Values (H2)			-0.231*				
			(-2.05)				
Property Rights*Values (H3)				0.023			
				(1.16)			
Bankruptcy Laws*Values (H4)					-0.007		
					(-0.32)		
Trade Freedom*Values (H5)						0.030	
						(0.60)	
Labor Flexibility*Values (H6)							0.050
							(1.48)
Admin Barriers to Entry	0.996**	0.840*	1.030**	0.652	0.714	0.772*	0.722*
	(2.99)	(2.41)	(2.95)	(1.70)	(1.36)	(2.09)	(2.05)
Property Rights and Contracts	-0.210	-0.157	-0.206	-0.141	-0.162	-0.152	-0.167
	(-1.95)	(-1.38)	(-1.83)	(-1.23)	(-1.39)	(-1.32)	(-1.48)
Bankruptcy Laws	0.187**	0.132*	0.117*	0.114*	0.132*	0.130*	0.111*
	(4.15)	(2.66)	(2.42)	(2.21)	(2.63)	(2.59)	(2.16)
Trade Freedom	0.054	0.077	0.056	0.081	0.0764	0.094	0.021
	(0.57)	(0.56)	(0.42)	(0.59)	(0.55)	(0.66)	(0.15)
Labor Flexibility	-0.0979	-0.130*	-0.125*	-0.131*	-0.120*	-0.130*	-0.116*
	(-1.87)	(-2.60)	(-2.61)	(-2.64)	(-2.07)	(-2.58)	(-2.31)
Initiative Taking in a Job is Important	-20.23**	-17.68*	-10.93	-19.85*	-17.14*	-17.46*	-19.26*
	(-3.13)	(-2.34)	(-1.36)	(-2.56)	(-2.19)	(-2.29)	(-2.55)
Competition is Important	-7.591**	-4.341*	-4.691*	-4.136*	-4.432*	-4.355*	-5.244**
	(-4.81)	(-2.41)	(-2.68)	(-2.29)	(-2.40)	(-2.40)	(-2.79)
GNI growth (annual %)	-0.575	-1.034*	-1.107**	-0.979*	-1.039*	-1.007*	-0.918*
	(-1.52)	(-2.52)	(-2.79)	(-2.38)	(-2.51)	(-2.43)	(-2.23)
Population: Working Age	0.499**	0.327**	0.251*	0.374**	0.340**	0.336**	0.322**
	(5.73)	(3.04)	(2.27)	(3.26)	(2.93)	(3.07)	(3.03)
Government Corruption	0.372	1.213	0.870	1.247	1.045	1.273	1.024
	(0.31)	(0.94)	(0.69)	(0.97)	(0.74)	(0.98)	(0.80)
Constant	58.61**	42.01	49.14*	40.82	43.88	40.64	56.34*
	(3.20)	(1.91)	(2.28)	(1.86)	(1.91)	(1.82)	(2.37)
Number of Observations	58	58	58	58	58	58	58

t statistics in parentheses
="* p<0.05

Table 10: Additional OLS Estimates on Productive Entrepreneurship [with low, medium, high ranges]

	Model 36	Model 37	Model 38	Model 39	Model 40
Pro-Entrepreneurial Values (H1)	0.787	2.685***	2.291***	2.000	0.658
	(0.77)	(4.23)	(6.15)	(1.39)	(0.29)
Admin Barriers to Entry*Values (H2); Lower third	-0.007				
	(-0.09)				
Admin Barriers to Entry*Values (H2); middle range	0.051				
	(0.37)				
Admin Barriers to Entry*Values (H2); Upper third	0.102				
	(0.91)				
Property Rights*Values (H3); Lower third		-0.023*			
		(-2.29)			
Property Rights*Values (H3); middle range		-0.016			
		(-0.76)			
Property Rights*Values (H3); Upper third		-0.036 +			
		(-1.82)			
Bankruptcy Laws*Values (H4); Lower third			-0.038**		
			(-3.16)		
Bankruptcy Laws*Values (H4); middle range			0.028		
			(0.49)		
Bankruptcy Laws*Values (H4); Upper third			-0.026**		
			(-3.11)		
Trade Freedom*Values (H5); Lower third				-0.012	
				(-0.64)	
Trade Freedom*Values (H5); middle range				-0.009	
				(-0.33)	
Trade Freedom*Values (H5); Upper third				-0.008	
				(-0.38)	
Labor Flexibility*Values (H6); Lower third					0.005
					(0.20)
Labor Flexibility*Values (H6); middle range					0.012
					(0.22)
Labor Flexibility*Values (H6); Upper third					0.011
					(0.31)
Admin Barriers to entry	-0.323	0.033	-0.817**	-0.114	-0.174
	(-1.32)	(0.15)	(-3.03)	(-0.45)	(-0.76)
Property Rights and Contracts	-0.077	-0.122*	-0.140*	-0.102	-0.100
	(-1.40)	(-2.16)	(-2.80)	(-1.69)	(-1.52)
Bankruptcy Laws	0.011	0.033	-0.006	0.011	0.004
	(0.57)	(1.33)	(-0.24)	(0.52)	(0.17)
Trade Freedom	0.053	-0.019	0.090	0.005	0.041
	(0.79)	(-0.31)	(1.33)	(0.06)	(0.56)
Labor Flexibility	0.077*	0.101**	0.135***	0.090*	0.095**
	(2.45)	(3.25)	(5.16)	(2.75)	(2.82)
Initiative Taking in a Job is Important	1.189	0.916	4.150	-0.0776	-0.550
	(0.27)	(0.23)	(1.04)	(-0.02)	(-0.13)
Competitions is Important	0.873	-0.643	0.267	0.113	0.217
	(0.93)	(-0.60)	(0.34)	(0.12)	(0.23)

Table 10 (cont.)

GNI growth (annual %)	0.180	-0.007	0.102	0.109	0.133
	(1.00)	(-0.04)	(0.71)	(0.58)	(0.70)
Population: Working Age	-0.070	-0.246	0.026	-0.113	-0.053
	(-0.47)	(-1.53)	(0.21)	(-0.64)	(-0.29)
Government Corruption	-0.852	-0.952	-1.795*	-0.873	-0.786
	(-1.28)	(-1.39)	(-2.80)	(-1.24)	(-1.09)
Year 2008	1.622**	2.052**	1.599*	1.830**	1.707**
	(3.47)	(3.30)	(2.67)	(3.23)	(3.33)
Constant	6.110	29.99	13.01	17.38	11.24
	(0.46)	(2.04)	(0.99)	(1.13)	(0.73)
Number of Observations	67	67	67	67	67

Formal test for the differences among the coefficients for Table 10*

Hypothesis 2a (Administrative Barriers to entry)
test Admin_Values1=Admin_Values2
(1) Admin_Values1 - Admin_Values2 = 0
Prob > F = 0.6239
test Admin_Values2=Admin_Values3
(1) Admin_Values2 - Admin_Values3 = 0
Prob > F = 0.6157
Hypothesis 3a (Property Rights)
test Property_Values1=Property_Values2
(1) Property_Values1 - Property_Values2 = 0
Prob > F = 0.7717
test Property_Values2=Property_Values3
(1) Property_Values2 - Property_Values3 = 0
Prob > F = 0.4447
Hypothesis 4a (Bankruptcy Laws)
test Bankrupt_Values1=Bankrupt_Values2
(1) Bankrupt_Values1 - Bankrupt_Values2 = 0
Prob > F = 0.2828
test Bankrupt_Values2=Bankrupt_Values3
(1) Bankrupt_Values2 - Bankrupt_Values3 = 0
Prob > F = 0.3821

Hypothesis 5a (Trade Policies)
test Trade_Values1=Trade_Values2
(1) Trade_Values1 - Trade_Values2 = 0
Prob > F = 0.8563
test Trade_Values2=Trade_Values3
(1) Trade_Values2 - Trade_Values3 = 0
Prob > F = 0.9572
Hypothesis 6a (Labor Market Flexibility)
test Labor_Values1=Labor_Values2
(1) Labor_Values1 - Labor_Values2 = 0
Prob > F = 0.8528
test Labor_Values2=Labor_Values3
(1) Labor_Values2 - Labor_Values3 = 0
Prob > F = 0.9762

*The formal test for the differences among the coefficients for high, medium and low for dependent variable productive entrepreneurship shows that the coefficients do not differ in a statistically significant way but there does appears to be a pattern across all measures.

Table 11: Additional OLS Estimates on Unproductive (Schneider) Entrepreneurship [with low, medium, high ranges]

	Model 41	Model 42	Model 43	Model 44	Model 45
Pro-Entrepreneurial Values (H1)	4.145	-0.832	2.015	-2.034	0.241
	(2.04)	(-0.70)	(1.12)	(-0.45)	(0.07)
Admin Barriers to Entry*Values (H2); Lower third	-0.166				
	(-0.87)				
Admin Barriers to Entry*Values (H2); middle range	-0.503**				
	(-3.07)				
Admin Barriers to Entry*Values (H2); Upper third	-0.337				
	(-1.40)				
Property Rights*Values (H3); Lower third		0.039+			
		(1.90)			
Property Rights*Values (H3); middle range		-0.050			
		(-1.51)			
Property Rights*Values (H3); Upper third		0.073			
		(1.58)			
Bankruptcy Laws*Values (H4); Lower third			-0.011		
			(-0.45)		
Bankruptcy Laws*Values (H4); middle range			-0.319*		
			(-2.16)		
Bankruptcy Laws*Values (H4); Upper third			0.023		
			(0.51)		
Trade Freedom*Values (H5); Lower third				0.048	
				(0.84)	
Trade Freedom*Values (H5); middle range				-0.019	
				(-0.30)	
Trade Freedom*Values (H5); Upper third				0.055	
				(0.89)	
Labor Flexibility*Values (H6); Lower third					0.022
					(0.51)
Labor Flexibility*Values (H6); middle range					-0.065
					(-0.89)
Labor Flexibility*Values (H6); Upper third					0.028
					(0.61)
Admin Barriers to entry	1.291**	0.717	1.091*	0.909	0.957
	(3.21)	(1.38)	(2.48)	(1.78)	(1.88)
Property Rights and Contracts	-0.204*	-0.0685	-0.126	-0.105	-0.114
	(-2.46)	(-0.74)	(-1.34)	(-1.13)	(-1.09)
Bankruptcy Laws	0.111	0.0757	0.0990	0.119	0.113
	(1.62)	(1.04)	(1.32)	(1.64)	(1.53)
Trade Freedom	0.0236	0.0340	-0.0223	0.0522	0.00611
	(0.23)	(0.41)	(-0.28)	(0.64)	(0.06)
Labor Flexibility	-0.0746	-0.127	-0.0740	-0.107	-0.0870
	(-1.15)	(-1.71)	(-0.82)	(-1.44)	(-0.94)
Initiative Taking in a Job is Important	-14.29	-19.18**	-10.79	-15.58*	-16.38*
	(-1.70)	(-3.23)	(-1.70)	(-2.62)	(-2.32)
Competitions is Important	-6.238	-4.077	-4.379	-4.810	-5.333
	(-1.69)	(-0.96)	(-1.26)	(-1.21)	(-1.25)

Table 11 (cont.)

GNI growth (annual %)	-1.147**	-0.731*	-0.769**	-0.885*	-0.883*
	(-3.01)	(-2.36)	(-3.53)	(-2.56)	(-2.56)
Population: Working Age	0.263	0.467**	0.261	0.355*	0.325
	(1.49)	(3.20)	(1.38)	(2.09)	(1.84)
Government Corruption	1.377	2.052*	1.663	1.854*	1.828*
	(1.72)	(2.71)	(1.53)	(2.54)	(2.40)
Constant	60.46*	34.34	43.86	40.47	48.94
	(2.21)	(1.29)	(1.54)	(1.62)	(1.57)
Number of Observations	58	58	58	58	58

Formal test for the differences among the coefficients for Table 11*

Hypothesis 2b (Administrative Barriers to entry)	**Hypothesis 5b (Trade Policies)**
test Admin_Values1=Admin_Values2	**test Trade_Values1=Trade_Values2**
(1) Admin_Values1 - Admin_Values2 = 0	**(1) Trade_Values1 - Trade_Values2 = 0**
Prob > F = 0.1083	**Prob > F = 0.0876**
test Admin_Values2=Admin_Values3	test Trade_Values2=Trade_Values3
(1) Admin_Values2 - Admin_Values3 = 0	(1) Trade_Values2 - Trade_Values3 = 0
Prob > F = 0.3807	Prob > F = 0.0132
Hypothesis 3b (Property Rights)	Hypothesis 6b (Labor Market Flexibility)
test Property_Values1=Property_Values2	test Labor_Values1=Labor_Values2
(1) Property_Values1 - Property_Values2 = 0	(1) Labor_Values1 - Labor_Values2 = 0
Prob > F = 0.0292	Prob > F = 0.1224
test Property_Values2=Property_Values3	**test Labor_Values2=Labor_Values3**
(1) Property_Values2 - Property_Values3 = 0	**(1) Labor_Values2 - Labor_Values3 = 0**
Prob > F = 0.0009	**Prob > F = 0.0295**
Hypothesis 4b (Bankruptcy Laws)	
test Bankrupt_Values1=Bankrupt_Values2	
(1) Bankrupt_Values1 - Bankrupt_Values2 = 0	
Prob > F = 0.0296	
test Bankrupt_Values2=Bankrupt_Values3	
(1) Bankrupt_Values2 - Bankrupt_Values3 = 0	
Prob > F = 0.0098	

*The formal test for the differences among the coefficients for high, medium and low for dependent variable unproductive entrepreneurship shows that the coefficients differ in statistically significant way for some but not all hypotheses. Specifically, there appears to be a pattern for trade barriers and labor market flexibility and there is significant support for differing coefficients for property rights and bankruptcy laws .

Table 12: Additional OLS Estimates on Unproductive Entrepreneurship (enterprise) [with low, medium, high ranges]

	Model 46	Model 47	Model 48	Model 49	Model 50
Pro-Entrepreneurial Values (H1)	8.998***	6.079***	-5.131	7.024*	19.33***
	(4.18)	(4.86)	(-1.80)	(2.65)	(9.39)
Admin Barriers to Entry*Values (H2); Lower third	-0.634***				
	(-4.48)				
Admin Barriers to Entry*Values (H2); middle range	-1.799***				
	(-4.27)				
Admin Barriers to Entry*Values (H2); Upper third	-0.629*				
	(-2.63)				
Property Rights*Values (H3); Lower third		-0.118***			
		(-5.31)			
Property Rights*Values (H3); middle range		-0.260***			
		(-4.43)			
Property Rights*Values (H3); Upper third		-0.087*			
		(-2.34)			
Bankruptcy Laws*Values (H4); Lower third			0.075		
			(1.71)		
Bankruptcy Laws*Values (H4); middle range			-0.771***		
			(-4.24)		
Bankruptcy Laws*Values (H4); Upper third			0.213**		
			(3.07)		
Trade Freedom*Values (H5); Lower third				-0.108*	
				(-2.82)	
Trade Freedom*Values (H5); middle range				-0.296**	
				(-3.40)	
Trade Freedom*Values (H5); Upper third				-0.048	
				(-1.32)	
Labor Flexibility*Values (H6); Lower third					-0.289***
					(-9.31)
Labor Flexibility*Values (H6); middle range					-0.555***
					(-10.20)
Labor Flexibility*Values (H6); Upper third					-0.234***
					(-7.65)
Admin Barriers to entry	-1.948*	-2.240***	-1.275	-2.916***	-1.902***
	(-2.60)	(-4.84)	(-1.64)	(-4.90)	(-5.78)
Property Rights and Contracts	0.171	-0.241	0.282	0.204	-0.015
	(0.70)	(-0.97)	(1.16)	(0.67)	(-0.11)
Bankruptcy Laws	-0.297**	-0.122	-0.660***	-0.267*	-0.0864
	(-3.43)	(-1.39)	(-4.40)	(-2.55)	(-1.47)
Trade Freedom	0.057	0.002	0.198	-0.018	-0.033
	(0.36)	(0.01)	(1.26)	(-0.09)	(-0.37)
Labor Flexibility	0.0415	0.697**	-0.275	0.350	0.564***
	(0.22)	(3.72)	(-1.41)	(1.53)	(4.96)
Imitative Taking in a Job is Important	26.17	60.44**	21.80	44.67*	62.05***
	(1.47)	(3.85)	(1.44)	(2.20)	(6.23)
Competitions is Important	-16.71**	-11.47**	-16.82**	-12.76*	-6.934**
	(-3.75)	(-3.74)	(-3.80)	(-2.83)	(-3.15)

Table 12 (cont.)

GNI growth (annual %)	0.543	0.642*	0.994*	1.109**	0.261
	(1.48)	(2.19)	(2.79)	(2.97)	(1.20)
Population: Working Age	0.117	-0.440*	0.151	-0.042	0.083
	(0.72)	(-2.67)	(1.00)	(-0.22)	(0.93)
Government Corruption	2.744	0.740	3.884	3.589	1.320
	(0.93)	(0.29)	(1.27)	(1.00)	(0.76)
Constant	151.6***	112.7***	159.8**	107.3**	48.71**
	(4.67)	(5.43)	(3.68)	(3.63)	(3.90)
Number of Observations	33	33	33	33	33

Formal test for the differences among the coefficients for Table 12

Hypothesis 2b (Administrative Barriers to entry)
test Admin_Values1=Admin_Values2
(1) Admin_Values1 - Admin_Values2 = 0
Prob > F = 0.0161
test Admin_Values2=Admin_Values3
(1) Admin_Values2 - Admin_Values3 = 0
Prob > F = 0.0037
Hypothesis 3b (Property Rights)
test Property_Values1=Property_Values2
(1) Property_Values1 - Property_Values2 = 0
Prob > F = 0.0525
test Property_Values2=Property_Values3
(1) Property_Values2 - Property_Values3 = 0
Prob > F = 0.0083
Hypothesis 4b (Bankruptcy Laws)
test Bankrupt_Values1=Bankrupt_Values2
(1) Bankrupt_Values1 - Bankrupt_Values2 = 0
Prob > F = 0.0005

test Bankrupt_Values2=Bankrupt_Values3
(1) Bankrupt_Values2 - Bankrupt_Values3 = 0
Prob > F = 0.0001
Hypothesis 5b (Trade Policies)
test Trade_Values1=Trade_Values2
(1) Trade_Values1 - Trade_Values2 = 0
Prob > F = 0.0508
test Trade_Values2=Trade_Values3
(1) Trade_Values2 - Trade_Values3 = 0
Prob > F = 0.0034
Hypothesis 6b (Labor Market Flexibility)
test Labor_Values1=Labor_Values2
(1) Labor_Values1 - Labor_Values2 = 0
Prob > F = 0.0000
test Labor_Values2=Labor_Values3
(1) Labor_Values2 - Labor_Values3 = 0
Prob > F = 0.0000

*The formal test for the differences among the coefficients for high, medium and low for dependent variable unproductive entrepreneurship (enterprise) shows that the coefficients differ in statistically significant way.

Figure 2

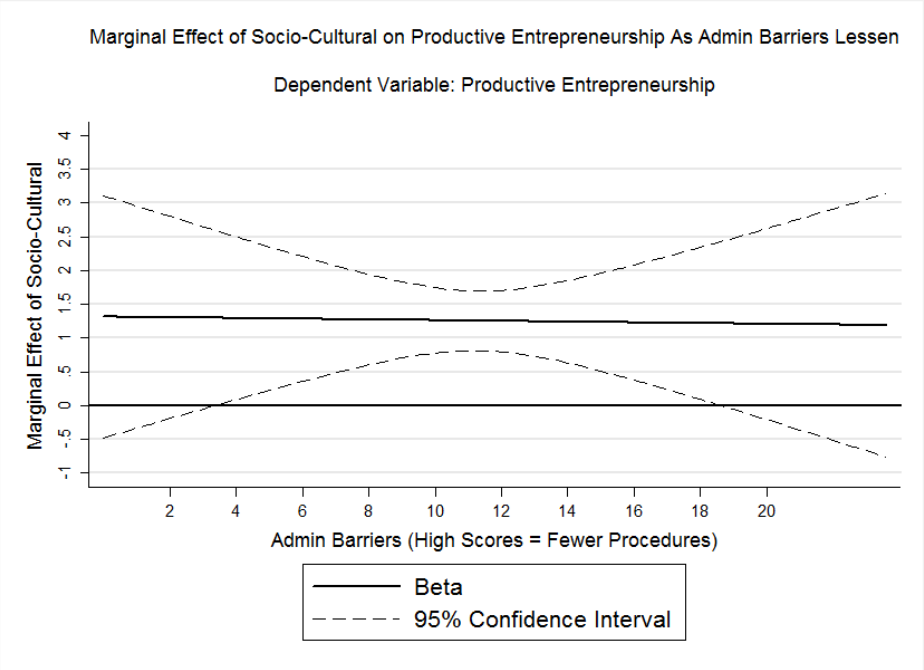


Figure 3

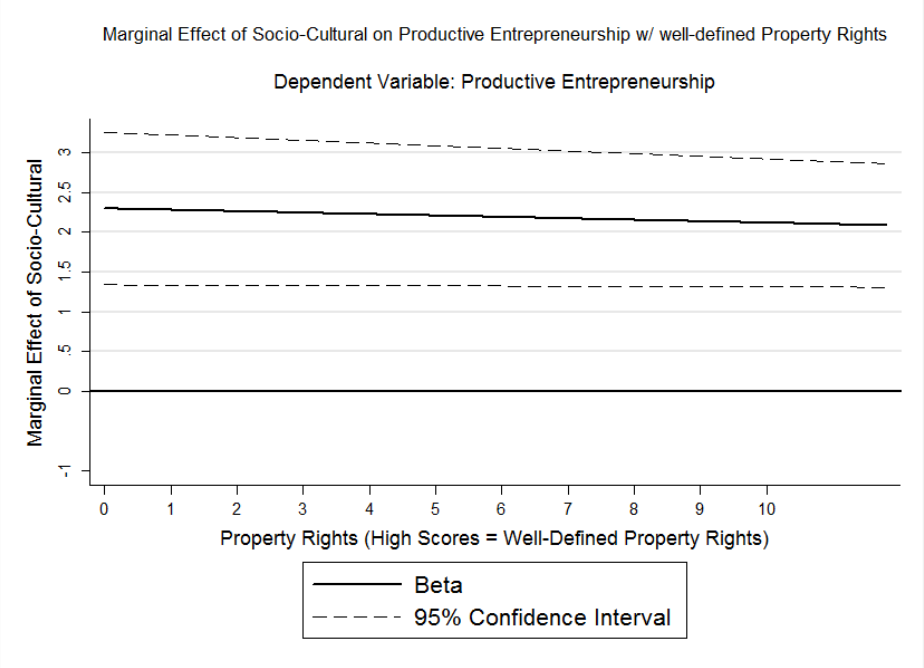


Figure 4

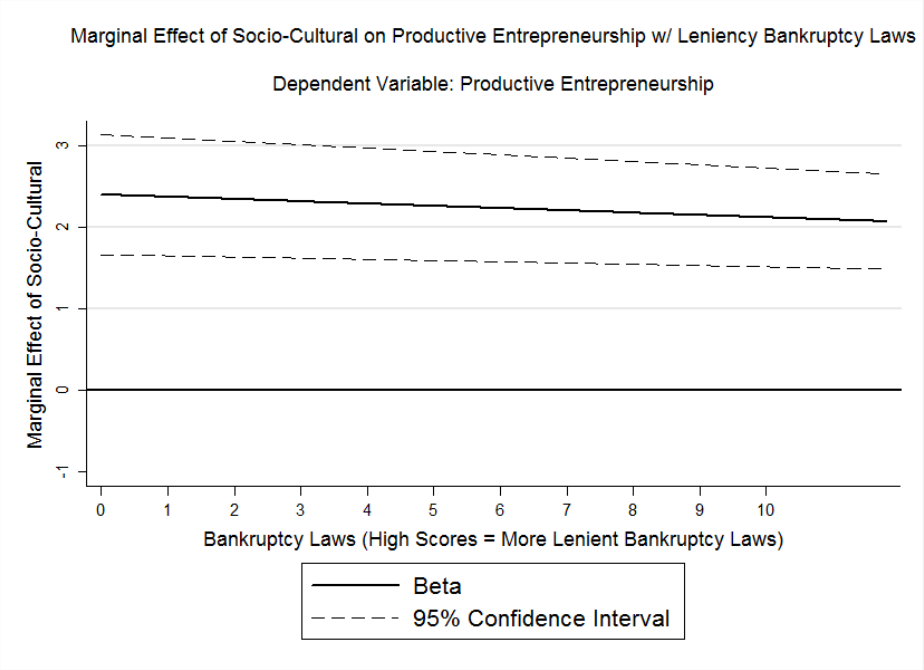


Figure 5

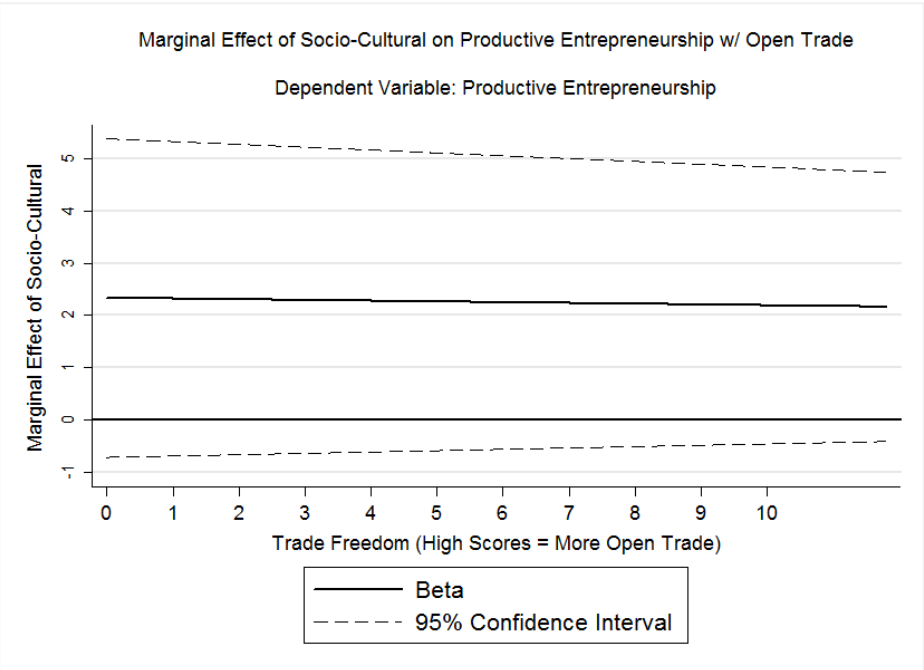


Figure 6

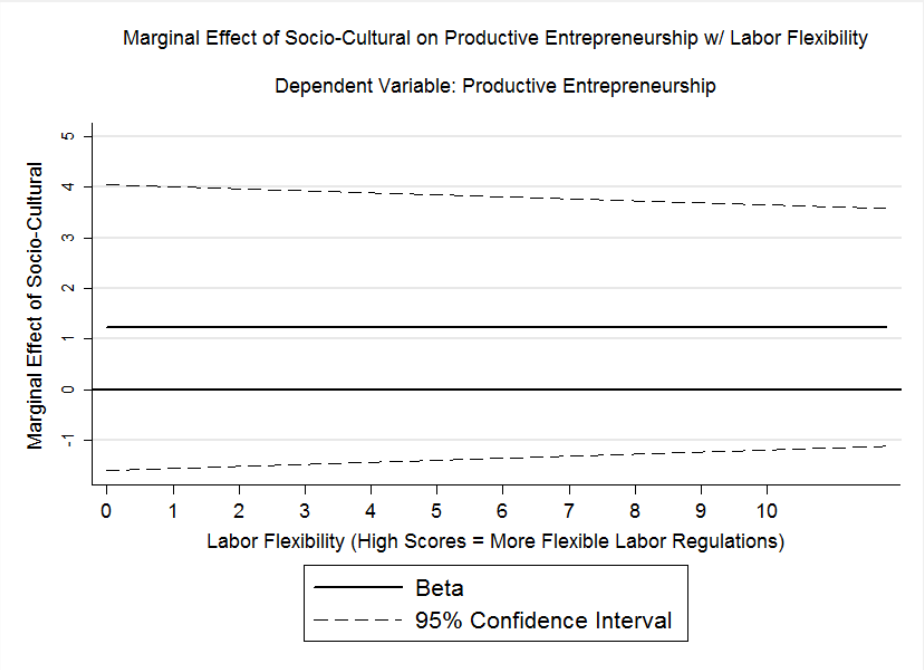


Figure 7

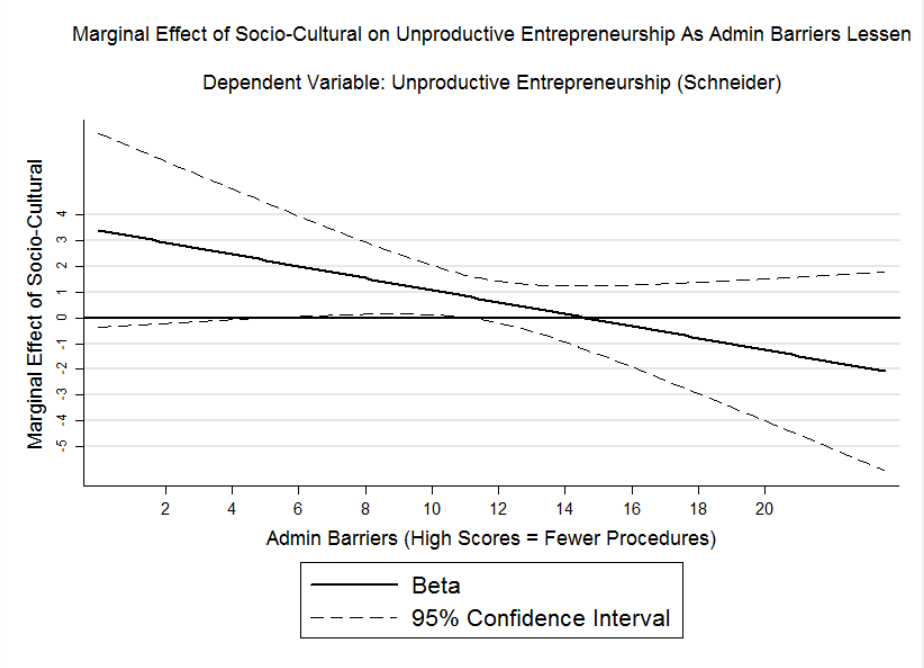


Figure 8

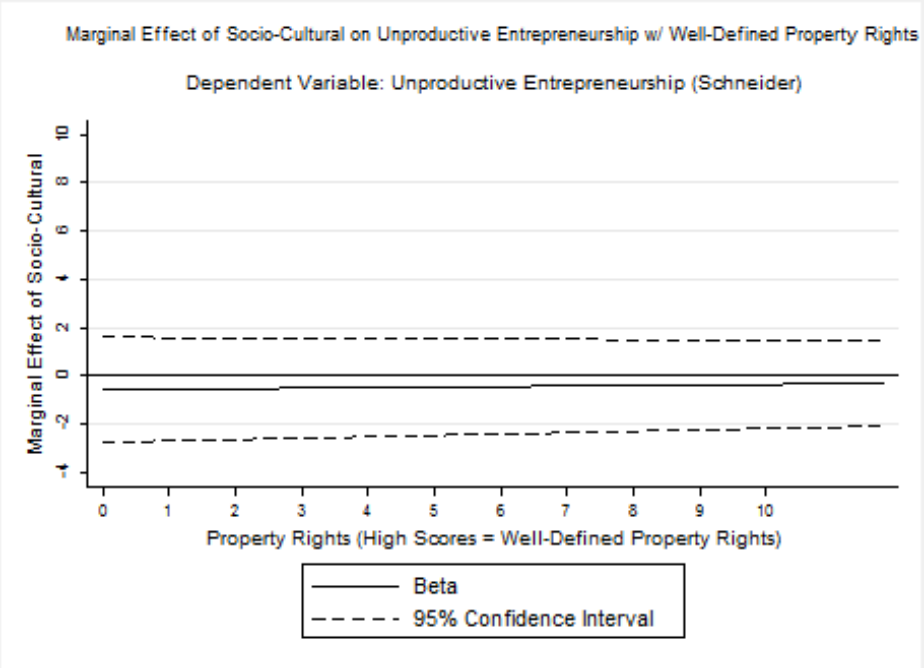


Figure 9

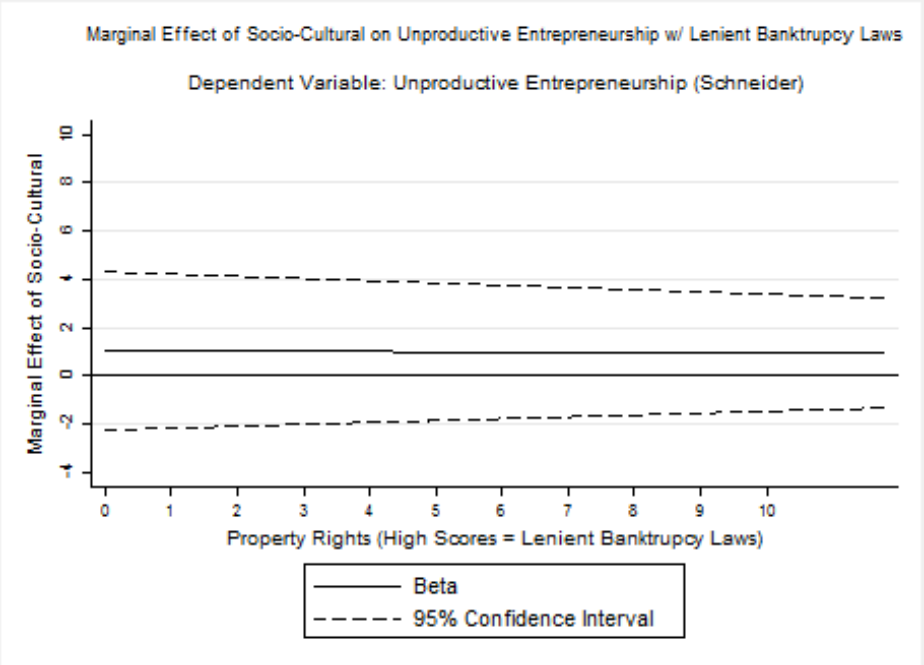


Figure 10

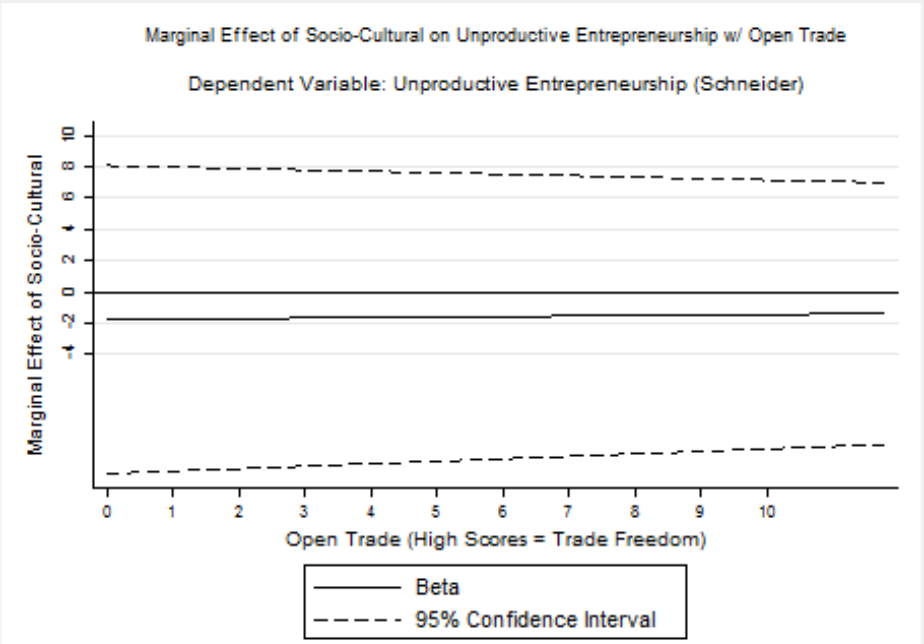


Figure 11

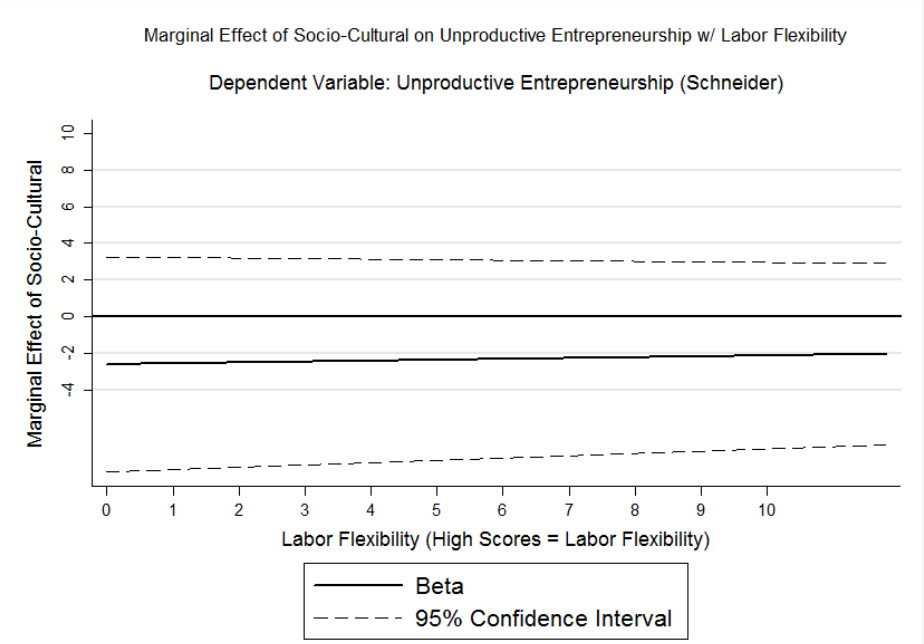


Figure 12

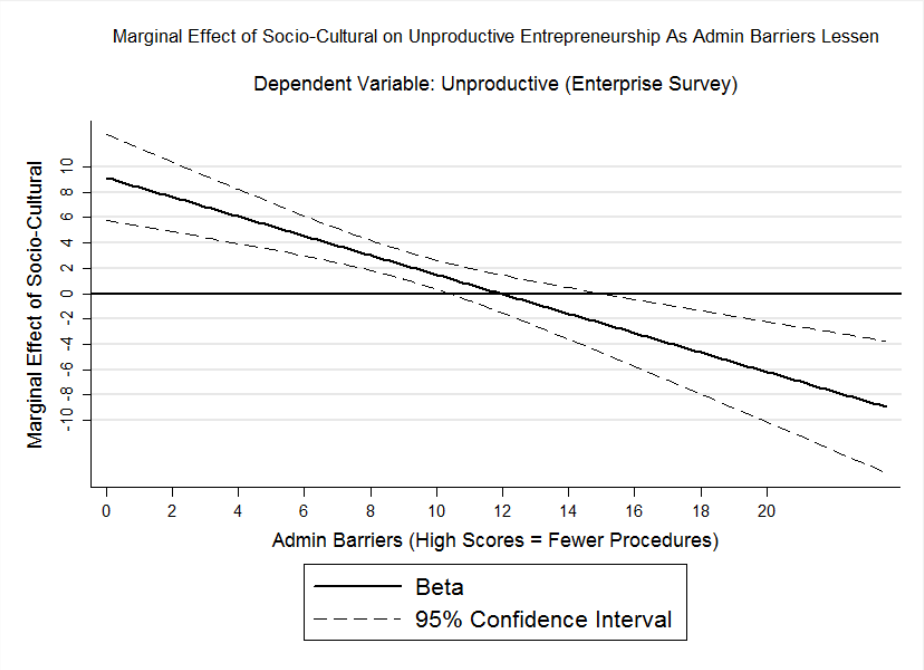


Figure 13

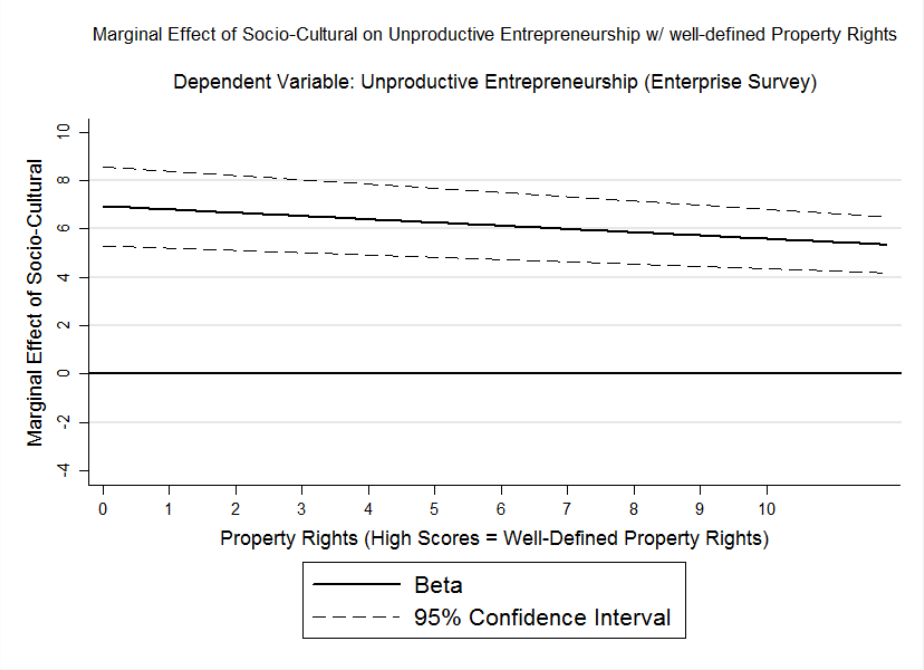


Figure 14

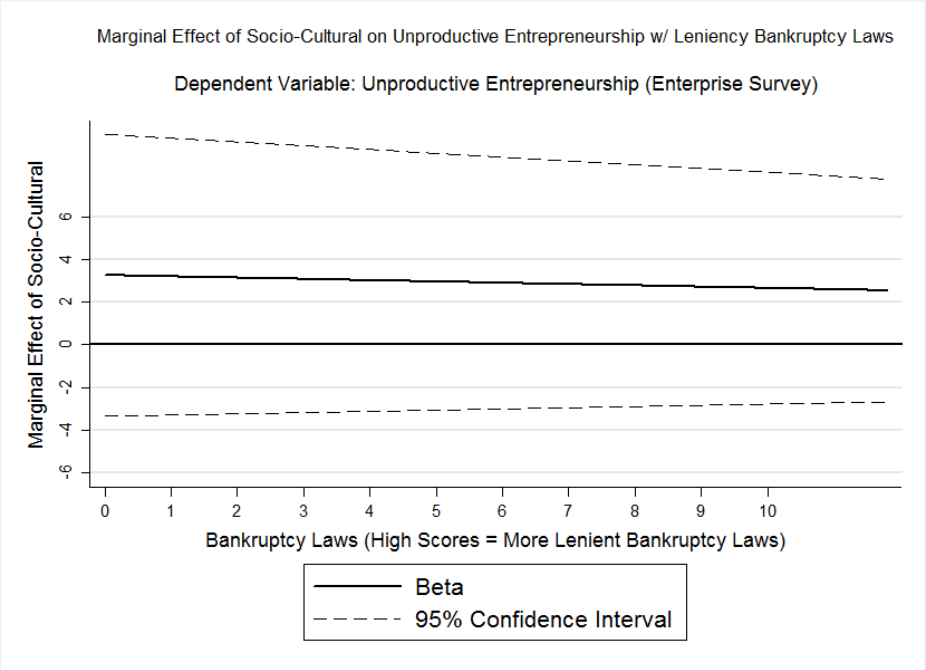


Figure 15

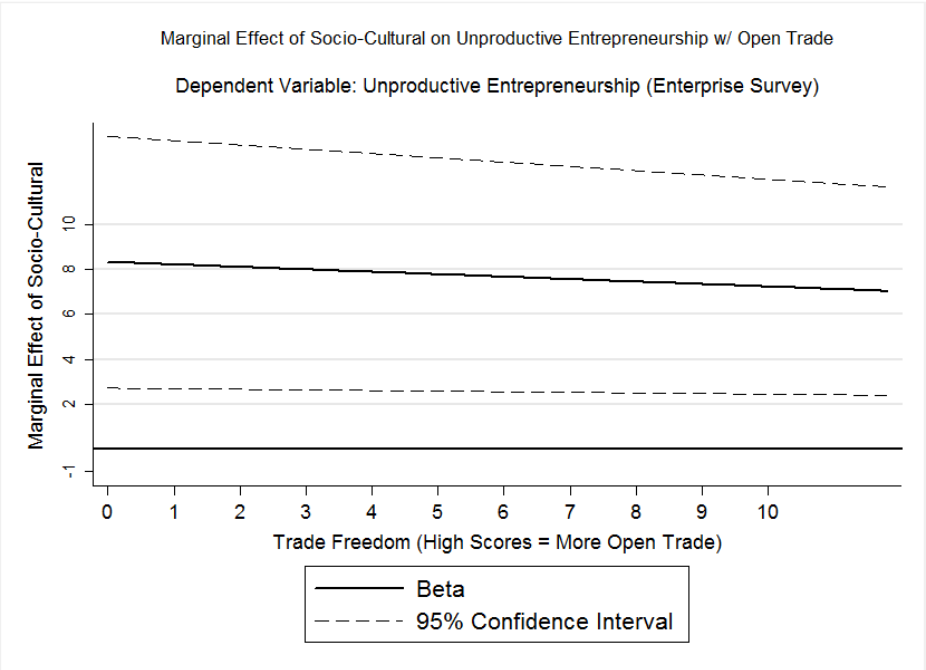
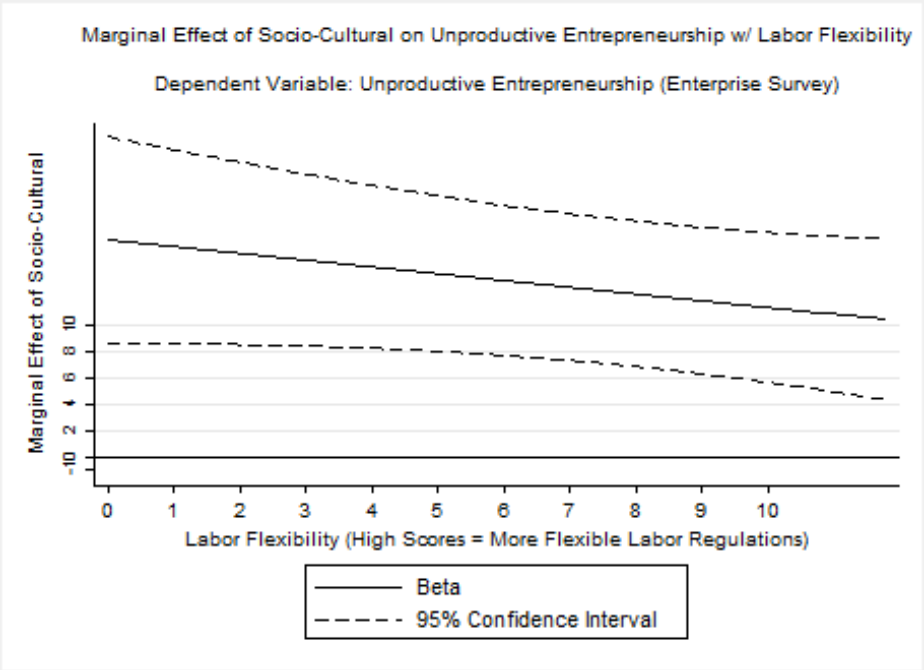


Figure 16


Marginal Effect of Socio-Cultural on Unproductive Entrepreneurship w/ Labor Flexibility
Dependent Variable: Unproductive Entrepreneurship (Enterprise Survey)
Marginal Effect of Socio-Cultural
-10
2
4
6
8
10
0
1
2
3
4
5
6
7
8
9
10
Labor Flexibility (High Scores = More Flexible Labor Regulations)
Beta
95% Confidence Interval

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Appendix A: Other Methods for Measuring Informal Economy

Type	Name	Description	Advantages	Disadvantages	Assumptions	Limitations
Direct	Detailed Survey	Voluntary replies to survey	Detailed Info	Data availability and reliability	All respondents cooperate with full disclosure	Narrowness of coverage: Limited to what respondents choose to disclose
Direct	Tax Auditing	Discrepancy between income declared for taxes and that measured by selective checks	Actual Numbers for calculation	Data availability and reliability	Confidence in fiscal auditing program; effective in selective checks	Possibly bias sample of population (toward compliance), tax audit reflects only discovered portion
Indirect	The physical input (electricity) method	Discrepancy between electricity consumption (overall economic activity) and GDP (official economic activity)	Simplicity in calculating and data availability	Calculations of the ratio of hidden economy to official appear not possible (see Lackó, 2000 for examples)	Electricity and GDP elasticity are usually close to one. By having a proxy measurement for the overall economy (electricity input) and subtracting it from estimates of official GDP, derives an estimate of unofficial GDP	Not all informal activities require electricity, technical progress has made the use of electricity more efficient, may be considerable differences or changes in elasticity of electricity/GDP across countries and time
Indirect	Income-Expenditures	Discrepancy between income and expenditures statistics	Simplicity in calculating	Data availability for both: independent estimate of expenditures and income	National accounting income measure of GNP should be equal to expenditures measures of GNP (any gaps = informal economy)	National accounts statistics have strong incentives to min. published discrepancy between expenditures and income then the data must be the initial (pre-published) data
Indirect	Labor Force	Discrepancy between official and actual labor force; based on total labor force	Simplicity in calculating	Its limited by its assumption	Labor force participation is constant so decreasing official rates in participation in actual labor force are indicators of growing informal	May be other causes in a decline in participation in actual labor market (e.g., person reasons like staying home with family)
Indirect	Transaction Approach	Discrepancy between official GNP and total nominal GNP	Use Fisher's quantity equation to get an exact number	Uses a base year where there is no informal economy but this is not the case, no base year exists; and assumes all variation in ratio is due to informal economy	Constant relation over time between volume of transactions and official GNP	Requires considerable amount of data (Giles, 1999)
Indirect	Currency Demand	Ratio between currency and demand deposits	One of most common approaches	Assuming same velocity of money exists across countries is a big assumption	Informal economy occurs in cash, increase in demand for cash means an increase in informal economy	Not all transactions in hidden economy are in cash, increase in currency demand deposits can be due to slowdown in demand deposits rather than currency

This spreadsheet is based off of work of Schneider, F. (2002). Size and Measurement of the Informal Economy in 110 Countries around the World. Working Paper.